



# Vapor Intrusion Investigation Work Plan

Occidental Chemical Corporation Facility

Wichita, Kansas

EPA ID #KSD007482029

Glenn Springs Holdings, Inc.

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# **1. Introduction**

This Vapor Intrusion (VI) Work Plan (VI Work Plan) was prepared by GHD Services, Inc. (GHD) on behalf of Glenn Springs Holdings, Inc. (GSH) for the Occidental Chemical Corporation (OCC) Wichita, Kansas Facility (Site or Wichita Facility or Facility) located at 6200 S. Ridge Road, Wichita, Sedgwick County, Kansas (United States Environmental Protection Agency (EPA) ID #KSD007482029), Figure 1. This work plan was prepared in accordance with Part II of the Facility's 2007 Resource Conservation and Recovery Act (RCRA)/Hazardous and Solid Waste Amendments (HSWA) operating permit (Permit) and the United States Environmental Protection Agency (U.S. EPA) Office of Solid Waste and Emergency Response (OSWER) 2015 OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air, (U.S. EPA, 2015a) [OSWER VI Guide]. This VI Work Plan outlines the goals and approach for evaluating the potential for vapor intrusion associated with Facility-related volatile contaminants of concern (COCs) in buildings within the exposure areas at the Site identified by the Human Health Risk Assessment (GHD, 2015). The location of the three exposure areas (Non-Process Area, Process Area, and Landfill Area) are shown on Figure 2.

The specific goals of this VI Work Plan are:

- Determine whether releases of volatile chemical constituents to environmental media pose unacceptable risks to human health via the vapor intrusion exposure pathway.
- Provide information to support decisions concerning the need for further evaluation or corrective action based upon current and reasonably anticipated future land use.

This VI Work Plan has been prepared in accordance with the OSWER VI Guide to address the potential VI pathway for the Site. The VI Work Plan identifies the investigative objectives and details on the building locations, sampling density, along with sample collection and analytical methods. The evaluation of the vapor intrusion pathway will be undertaken following the approval of this work plan and collection of soil gas data associated with occupied buildings.

## **1.1 Purpose**

The purpose of this VI investigation is to conduct soil gas sampling to assess the potential for vapor intrusion to occur into the various industrial buildings located on the Site, due to the presence of volatile organic compound (VOC) impacted soil and groundwater under the buildings. The presence of residual dense non-aqueous phase liquid (DNAPL) within the soils also has the potential to impact the indoor air quality of the overlying Site buildings. The investigation will involve characterizing vadose zone soil gas quality adjacent to the buildings, evaluating the analytical results, and determining whether Chemicals of Potential Concern (COPCs) are present in soil gas adjacent to the buildings at sufficient concentrations to pose a potential threat to indoor air quality.

This Work Plan is organized as follows:

- |           |  |
|-----------|--|
| Section 1 | Presents the introduction, purpose, and organization of this Work Plan                                       |
| Section 2 | Presents relevant background information, including a Conceptual Site Model for vapor intrusion for the Site |
| Section 3 | Presents the proposed soil gas quality investigation   |
| Section 4 | Presents the approach for assessing the soil gas quality data  |
| Section 5 | Presents the proposed schedule for the soil gas quality investigative activities                             |

## **2. Background**

The Wichita Facility is an active chemical plant which has been in operation since 1952 and is located in a rural industrial and agricultural farming area. This Facility currently produces chlorine, caustic, hydrogen, sodium chlorite, hydrochloric acid, methylene chloride, methyl chloride, chloroform, and carbon tetrachloride. The current Facility layout is presented on Figure 2. A comprehensive discussion of the Facility's operational history and waste disposal practices is summarized in the Comprehensive RCRA Facility Investigation Summary Report (CRA, 2014a) and the Phase II Groundwater RFI (CRA, 2014b).

OCC acquired the Wichita Facility from Vulcan Chemical in 2005. Following renewal of the Permit in 2007, an RFI Schedule of Work was agreed upon by U.S. EPA and GSH in 2008 in order to address revised HSWA requirements identified in Part II of the Permit, including investigation of over 150 Solid Waste Management Units (SWMUs) and Areas of Concern (AOC). The conclusions of the RFI identified a subset of SWMUs requiring further analysis in the Human Health Risk Assessment (HHRA, GHD, 2015). The RFI was completed and approved (U.S. EPA, 2015).

A VI investigation and evaluation was completed at the request of U.S. EPA at the Technical Center, Administration Building, and Control Laboratory. Furthermore, OCC completed Interim Corrective Measures (ICMs) for VI at the Technical Center, Administration Building, and Control Laboratory (CRA, 2011a): the U.S. EPA approved the VI ICM on August 11, 2011. The following documents were developed and approved by U.S. EPA in conjunction with the VI investigation and ICM for the Technical Center, Administration Building and Control Laboratory:

- Shaw Environmental, Inc., 2008a. Work Plan for Indoor Soil Gas Sampling, Occidental Chemical Corporation, Wichita, Kansas, September 22.
- Shaw Environmental, Inc., 2008b, Draft Indoor Soils Gas Sampling Report, Occidental Chemical Corporation, Wichita, Kansas, December 9.
- U.S. EPA, 2009. Letter from D. Garrett to J. Somoano providing U.S. EPA's Comments on 'Sub-Slab Soils Gas Sampling Report' dated March 19.
- CRA, 2009a. Letter from B. Clegg to D. Garrett providing OCC's Responses to U.S. EPA Comments and Evaluation of Vapor Intrusion Pathway dated May 8.
- CRA, 2009b. Letter from B. Clegg to D. Garrett providing OCC's Responses to U.S. EPA's Comments and Evaluation of Vapor Intrusion Pathway dated September 14.
- CRA, 2009c. On-Site Vapor Intrusion Investigation, Assessment, and Interim Corrective Measures Implementation, Glenn Springs Holdings, Inc., Occidental Chemical Corporation Facility, Wichita, Kansas, September.
- CRA, 2010a. Letter from B. Clegg to D. Garrett providing OCC's Response to U.S. EPA's Comments Operation and Maintenance Plan for On-Site Vapor Intrusion Interim Corrective Measures at the Control Laboratory, Technical Center, and Administration Building dated December 20.
- CRA, 2010b. Operation and Maintenance Plan for On-Site Vapor Intrusion Interim Corrective Measures at the Control Laboratory, Technical Center and Administration Building Occidental Chemical Corporation Wichita, Kansas, December.
- CRA, 2011a. On-Site Vapor Intrusion Mitigation Interim Corrective Measures Construction Completion Report, Occidental Chemical Corporation Wichita, Kansas, August.

The operation of the VI ICM continues under the revised Operations and Maintenance Plan (CRA, 2010b) cited above.

## **2.1 Geologic and Hydrogeologic Conditions**

A comprehensive discussion of the Site geology and hydrogeology is provided in the Phase II On-Site Groundwater RFI Summary Report (CRA, 2014a) and the Phase II On-Site Groundwater RFI Supplemental Report (CRA, 2014b) and the discussion is not replicated here. This VI Work Plan will focus on VOC compounds in the vadose zone (C4 unit) and first groundwater-bearing unit (S2/S3 hydrogeologic unit). Cross-sections depicting the typical geology underlying the Site are presented on Figures 3 and 4.

## **2.2 Conceptual Site Model (CSM) for Vapor Intrusion**

The VI CSM was developed through the evaluation of the Facility media (i.e., soil and groundwater) and the buildings. The first step was to perform an initial screening evaluation of the analytical data from the impacted soil, DNAPL, and groundwater to identify if there are volatile parameters that will result in vapors in the overlying buildings and a potential vapor intrusion concern. Next the Facility buildings were evaluated to determine if there is potential for exposure to the vapors within an occupied structure in contact with the ground surface.

### **2.2.1 Data Summary**

The following media within each of three exposure areas have been included and will either be qualitatively or quantitatively evaluated within the VI evaluation:

- Surface and subsurface soil: 0 to approximately 40 to 50 feet (ft) below ground surface (bgs) within the vadose zone which is the approximate depth to the first water bearing zone (S2/S3). As any soils within the saturated zone of the first water bearing zone are not able to release vapors, the soils deeper than 50 ft were not considered.
- Groundwater: the last 5 years of data will be considered (2011 to 2015).

Groundwater monitoring has been conducted in the vicinity of the Site since the 1970s. Trends were evaluated in detail during the Interceptor Well Effectiveness Study which was approved by the U.S. EPA in 2010. Isoconcentration contour maps are routinely provided in the periodic groundwater monitoring reports. In addition, the last 4 years have included a marked expansion in the groundwater monitoring well network including the addition of the following since 2011:

- 11 monitoring wells
- 9 piezometers
- 47 geoprobe locations
- 4 extraction wells

Thus, the most recent (last 5 years) of monitoring is representative of the broadest areal extent of the groundwater monitoring program and greatest resolution of analytical and hydraulic information. In addition, the timeframe of 5 years includes 2 biennial (every other year), 2 annual (every 12 months), and 4 semiannual (every 6 months) sampling rounds. This universe of data is intended to maximize the probability that wells which cannot be reliably sampled (e.g., dry wells, flooded wells, and Westar production wells) would be included in the data set. Moreover, this time period

provides sufficient data to understand uncertainty but minimizes the influence of historical concentration changes under different flow regimes.

The analytical data that will be considered in the VI evaluation is provided in Appendix A. Figures 5 through 7 depict the RFI soil data sample locations for the Non-Process, Process, and Landfill Areas, respectively, and Figure 8 shows the monitoring well, interceptor well, and piezometer locations. In June 2015, 18 surface soil samples (plus one duplicate) were collected from the Process and Non-Process Areas as per a U.S. EPA-approved HHRA Work Plan data gap evaluation (CRA, 2014c). These new surface soil data are included in the data set for each of these two areas.

## **2.2.2 Identification of Chemicals of Potential Concern (COPCs)**

Soil and groundwater analytical data from the Process, Non-Process, and Landfill Areas were screened for parameters which could potentially result in a vapor intrusion concern for the enclosed structures within each of these exposure areas. For soils, the chemicals of potential of concern (COPCs) were determined based on whether the parameters were considered to be volatile. A chemical's volatility is based on either a vapor pressure greater than 1 mm Hg or Henry's law constant that is greater than 0.00001 atm·m<sup>3</sup>/mole (U.S. EPA, 2015b). The groundwater COPCs for each exposure area were determined by comparison of the groundwater analytical data to the calculated Target Groundwater Concentrations (TGCs) that are considered to be protective of indoor air for a typical industrial/commercial worker scenario. The TGCs were calculated using the U.S. EPA's OSWER Vapor Intrusion Screening Level (VISL) Calculator (Version 3.4, June 2015 Regional Screening Levels [RSLs]) (U.S. EPA, 2015b) and assuming an industrial/commercial worker exposure scenario and an average groundwater temperature of 15.5 degrees Celsius. The average groundwater temperature was based on the groundwater temperatures measured during the November 2014 and June 2015 groundwater monitoring events. A Target Risk (TR) for carcinogens of 1E-06 and Target Hazard Quotient (THQ) of 0.1 were also used in the VISL calculator to calculate the TGCs used in the screening to identify the groundwater COPCs. As the land use for the Facility will be deed restricted to industrial/commercial use therefore, the groundwater TGCs based on industrial/commercial land use is considered to be appropriate to identify the groundwater COPCs for each exposure area.

The COCs with maximum groundwater concentration within each exposure area that were less than their respective screening values were not identified as COPCs and therefore were not retained for the VI quantitative process. Analytes which were detected and are considered volatile but lack an applicable screening value due to lack of toxicity information have been considered to be a COPC for this Work Plan.

Selection of COPCs is more specifically discussed below for each of the impacted media by exposure area.

### ***Non-Process Area***

#### ***Soil (0 to 50 ft bgs)***

As identified in the COPC column of Table 1, the following parameters in soil were identified as volatile and therefore could potentially result in a vapor intrusion concerns for the overlying buildings: hexachlorobenzene, hexachlorobutadiene, hexachloroethane, carbon tetrachloride, chloroform, methylene chloride, trichloroethene, and tetrachloroethene.

### *Groundwater*

Based on comparison of the Non-Process Area groundwater to the TGCs, the following parameters in groundwater were identified as potential groundwater COPCs (see Table 2) that could potentially result in a vapor intrusion concerns for the overlying buildings: carbon tetrachloride and chloroform.

### *Process Area*

#### *Soil (0 to 50 ft bgs)*

As identified in the COPC column of Table 3, the following parameters in soil were identified as volatile and therefore could potentially result in a vapor intrusion concerns for the overlying buildings: 2-chlorophenol, 3/4-chlorophenol, hexachlorobenzene, hexachlorobutadiene, hexachloroethane 1,1,1-trichloroethane, 1,2-dichloroethane, 1,2-dichloropropane, benzene, carbon tetrachloride, chloroform, chloromethane, methylene chloride, tetrachloroethene, trichloroethene, and vinyl chloride.

### *Groundwater*

Based on comparison of the Process Area groundwater to the TGCs, the following parameters in groundwater (see Table 4) were identified as potential groundwater COPCs that could potentially result in a vapor intrusion concerns for the overlying buildings: 2-chlorophenol, 3/4-chlorophenol, hexachlorobenzene, hexachlorobutadiene, hexachloroethane, 1,2-dichloroethane, 1,2-dichloropropane, benzene, carbon tetrachloride, chloroform, methylene chloride, tetrachloroethene, and trichloroethene.

### *Landfill Area*

#### *Soil (0 to 50 ft bgs)*

As identified in the COPC column of Table 5, the following parameters in soil were identified as volatile and therefore could potentially result in a vapor intrusion concerns for the overlying buildings: hexachlorobenzene, hexachlorobutadiene, hexachloroethane, benzene, carbon tetrachloride, chloroform, methylene chloride, tetrachloroethene, and trichloroethene.

Based on comparison of the Landfill Area groundwater to the TGCs, the following parameters in groundwater were identified as potential groundwater COPCs (see Table 6) that could potentially result in a vapor intrusion concerns for the overlying buildings: 2-chlorophenol, 3/4-chlorophenol, hexachlorobenzene, hexachlorobutadiene, hexachloroethane, 1,2-dichloroethane, 1,2-dichloropropane, benzene, carbon tetrachloride, chloroform, methylene chloride, tetrachloroethene, and trichloroethene.

### **2.2.3 Identification of Facility Buildings**

The following stepwise approach was used to select the buildings within each exposure area that could potentially be evaluated further as part of the vapor intrusion investigation.

The occupancy of each structure was considered by the Facility personnel and documented in Table 7. A structure was considered to be occupied if it met the following definition:

"Occupied" means that the building is used and there is human occupation of it with regularity (e.g., persons present the same day of the week, for approximately the same number of hours).

Incidental building use (e.g., a building with primary purpose of material storage has intermittent visits by individuals who do not remain in the building after delivery or retrieval of such materials) does not meet the definition of "Occupied".

Vapor intrusion is the general term given to migration of hazardous vapors from any subsurface contaminant source, such as contaminated soil or groundwater or contaminated conduit(s), into an overlying building or unoccupied structure via any opening or conduit (U.S. EPA, 2015a). However, the building and/or structure must be enclosed with walls and a roof and be in contact with the underlying soils through a basement and/or foundation.

Structures which are considered occupied and enclosed are considered for further evaluation. The existing Facility operates 7 days per week, 24 hours per day (168 man hours per week) with four shifts of approximately 40 hours per week per shift. Therefore incidental use of a building/structure is considered to be 10 percent or less of the total man hours per week (168 hours). Buildings/structures listed in Table 7 with 17-hour man hours per week or less (i.e., 10 percent or less of the total work hours per week) are not considered occupied and not considered further. Building/structure construction characteristics such as foundation type (e.g., slab on grade), construction materials (e.g., cinderblock, metal siding), openings (e.g., windows, doors), and ventilation (e.g., HVAC or fans) were included in the evaluation (Table 7). Only the structures identified by a "yes" in the evaluation column of Table 7 were considered further in this evaluation. The structures (hence forth known as "buildings") considered for further evaluation are presented in Table 7 and shown on Figure 9. Of the 236 structures identified at the Facility, 16 of these structures will be considered for further evaluation as identified in Table 7. A vapor intrusion air evaluation of the Administration, Technical Center, and Control Laboratory buildings within the Non-Process Area was undertaken 2009 through 2011. Based on the evaluation, building pressurization was implemented in these buildings as an ICM (CRA, 2011a) (approved by the U.S. EPA on August 11, 2011). The operation of the VI ICM continues under the revised Operations and Maintenance Plan (CRA, 2010b), and as a result, these three buildings will not be re-evaluated and therefore are not considered further in this work plan.

The next step of the evaluation was to consider the proximity of the retained buildings to soil/DNAPL impacts and/or shallow groundwater impacts. A building was considered for further evaluation if it was within 100 ft (horizontally and vertically) of the impacts, then the building would proceed to the next step of evaluation consistent with Section 6.2.1 of U.S. EPA (2015a). Buildings beyond 100 ft (horizontal or vertical) of impacts were eliminated from further evaluation. Only soil analytical data to a depth of approximately 50 ft (i.e., within the vadose zone or unsaturated zone) were considered in the evaluation as the first water bearing unit S2/S3 occurs at approximately 50 ft bgs. As stated previously, any deeper soil impacts within the saturated zone of the first water bearing unit would not be able to release vapors and therefore would not result in vapor intrusion concerns.

The buildings selected for evaluation were based on their location relative to the known presence of the shallow groundwater impacts in the S2/S3 aquifer and presence of DNAPL in the S4/C3 interface. The groundwater and DNAPL impacts in the deeper units were not considered as it is the shallowest impacts that will contribute to the vapor intrusion for the overlying buildings. The soil and groundwater COPCs have been identified in Section 2.2.2 above. The groundwater plumes of carbon tetrachloride, tetrachloroethene, hexachlorobutadiene, and hexachloroethane in the S2/S3 aquifer and the DNAPL at the S4/C3 interface are shown on Figure 9. The buildings selected for evaluation are identified on Figures 10 through 13.

Given the extent of the groundwater impacts across the Facility, all the selected buildings will be considered for further evaluation.

## **3. Soil Gas Quality Investigation**

The investigation of the shallow soil gas quality in the areas adjacent to the buildings identified above will be through the installation and sampling of shallow soil gas probes. Due to the areal extent of the groundwater plume and number of buildings within the Process Area of the Facility, approximately twenty-four shallow soil gas probes will be installed. These 24 locations are considered representative of soil vapor concentrations based on results of the RFI investigations (CRA, 2014a & b) and are consistent with the aerial extent of groundwater (CRA, 2014a & b). Two additional probe locations are proposed: one probe adjacent to the selected buildings within the Non-Process Area and one probe adjacent to the building in the Landfill Area, for a total of 26 shallow soil vapor probes across the Facility. The approximate locations of the shallow soil vapor probes are presented on Figures 11 to 13 for the Non-Process, Process, and Landfill Areas, respectively. The final locations of the soil gas probes will be determined in the field based upon and the locations of underground structures and piping in the areas and will be within 5 ft of the nearest selected building. The field work will be conducted under the existing Health and Safety Plan for the site.

### **3.1 Soil Gas Probe Installations**

Prior to drilling, GHD will make the appropriate utility locate notifications (Kansas One-Call) and work with OCC personnel in order to determine the locations of underground structures and piping present in the drilling locations. Each soil probe location will be cleared for subsurface utilities via air knifing techniques within a 1.5-ft radius of the proposed probe location. A total of five air knife utility clearance locations will be installed in a star pattern around the center of the proposed soil vapor probe location. Each air knife clearance location will be installed to a depth of 5 ft bgs. Once the area surrounding the soil probe location has been cleared for utilities, the air knife borings will be backfilled with granular bentonite and hydrated with distilled water in 1-ft lifts.

Then, the shallow soil gas probes will be installed using direct-push drilling techniques into undisturbed soil. The top of the screened interval will be positioned approximately 5-6 ft bgs. The soil gas sampling points will be constructed of new, dedicated materials. A 6-inch long, 1/4-inch inner diameter (ID) stainless steel screen will be connected to 1/4-inch outer diameter (OD) nylon tubing and inserted into the borehole to the targeted depth. Sand pack will be placed into the hole from the base of the boring to a minimum of 6 inches above the top of the screen. Approximately 12 inches of dry granular bentonite, bentonite grout or bentonite chips will be placed to within approximately 1 ft of the surface. If bentonite chips are used, the chips will be hydrated in approximately 1-ft lifts with distilled or deionized water. A metal flush-mount cover will then be installed in a small concrete pad to protect the sampling port. The shallow soil gas probe installation procedures are presented in Appendix B.

### **3.2 Soil Gas Probe Sampling**

Two rounds of soil gas sampling will be conducted in order to obtain consistent results. The soil vapor probes installation will be performed using direct push drilling into undisturbed soil as outlined above. As a result, the first round of soil gas samples will be collected at a minimum of 1 week

following probe installation to allow subsurface conditions to equilibrate and soil gas concentrations to stabilize prior to conducting soil gas sampling. The second round of soil gas sampling will be conducted approximately 2 to 3 months after the first round to account for potential seasonal variability.

The soil gas samples will be collected using 6-liter stainless steel evacuated canisters (e.g., Summa® canisters). The soil gas samples will be collected using a maximum sample flow rate of 100 milliliters per minute (mL/min) over a 1-hour duration. A 1-hour sample collection duration is considered appropriate since soil gas quality conditions at the screened interval are expected to be relatively consistent and do not vary significantly with short-term weather fluctuations. The stainless steel canisters will be laboratory-certified clean on an individual canister basis. The soil gas sampling procedures, including leak testing, are presented in Appendix B.

The soil gas samples will be transported under standard chain-of-custody procedures to a certified laboratory for analysis. The soil gas samples will be analyzed using EPA Method TO-15 gas chromatograph/mass spectrometer (GC/MS) methodology. The results of only the COPCs presented in Table 8 will be reported. The target soil gas concentration for each of these COPCs is also presented in Table 8. The target soil gas concentrations were calculated using the U.S. EPA's OSWER VISL Calculator (Version 3.4, June 2015 RSLs) and assuming an industrial/commercial worker exposure scenario and Target Risk (TR) for carcinogens of 1E-06 and Target Hazard Quotient (THQ) of 0.1. QA/QC measures implemented during the program will include leak testing, collecting a field duplicate sample, and maintaining a minimum negative pressure in all the canisters following sample collection, as described in Appendix B.

### **3.3 Administration Building Indoor Air Sampling**

The VI ICM was established in 2011 and OCC has completed the quarterly inspection and reporting requirements outlined in the Interim Corrective Measures Operations and Maintenance Plan for the Administration Building, Technical Center and Control Building (CRA, 2011a) to document that the performance standards established to eliminate the potential for significant vapor intrusion are being met. The Operations and Maintenance Plan outlines quarterly inspections and reporting of visual observations on the conditions of the building floors and measuring of the pressure differential between the building and the subsurface via permanent pressure gauges. OCC and GSH perform this monitoring to document that a positive (i.e., outward or downward) pressure differential is being maintained within these buildings through the continuously operated Heating Ventilation and Air Conditioning (HVAC) system. The results of the quarterly inspections of the ICM, including the quantitative measurement of pressure differential, have been reported to U.S. EPA since 2011. These data continue to demonstrate that there is no driving force for vapor intrusion into the building and the positive pressurization maintained within the building prevents soil gas entry into the building. The quarterly pressure monitoring that has occurred over the last five years is consistent with current U.S. EPA guidance and has continually demonstrated that the exposure controls are operating as intended. However, in August 2016, U.S. EPA requested supplemental indoor air monitoring in occupied locations within the Administration Building. The proposed indoor air sampling approach and locations are presented in Appendix C.

### **3.4 Supplemental Off-Site Soil Vapor Investigation**

OCC, in coordination with U.S. EPA investigated the potential for vapor intrusion due to the groundwater impacts in seven residences from 2008 to 2010. The following documents were developed and approved by US. EPA in conjunction with the off-Site VI investigation:

- Shaw Environmental, Inc., 2008. Work Plan for Indoor Soil Gas Sampling, Occidental Chemical Corporation, Wichita, Kansas, September 22.
- CRA, 2009d. Letter from Bruce Clegg to David Garrett providing Supplemental Off-Site Soil Gas Sample Collection and Analysis Plan on behalf of Glenn Springs Holdings, Inc., Occidental Chemical Corporation Facility, Wichita, Kansas, June 28.
- Shaw Environmental, Inc., 2009. Revised Soils Gas Sampling Work Plan, Occidental Chemical Corporation, Wichita, Kansas, July 25.
- CRA, 2011b. Supplemental Quarterly Off-Site Soil Gas Monitoring Summary Report Revision 1, Glenn Springs Holdings, Inc., Occidental Chemical Corporation Facility, Wichita, Kansas, January 17.
- U.S. EPA, 2011. Letter from David Garrett to Juan Somoano providing U.S. EPA's approval of the 'Revised Supplemental Quarterly Off-Site Soil Gas Monitoring Report' dated January 27.

However, in August 2016, U.S. EPA requested OCC and GSH attempt collection of soil gas samples in the public Right-of-Way near six residences in the vicinity of the largest off-Site plume (carbon tetrachloride). Appendix D presents the proposed soil gas sampling approach and locations.

## **4. Assessment of Soil Gas Data**

The assessment of the shallow soil gas quality data will include evaluation against calculated U.S. EPA target near-source soil gas concentrations for 1E-06 to 1E-04 cancer risks and a THQ of 0.1 for noncarcinogenic risks presented in Table 8 for each COPC. The evaluation will include multiple lines of evidence approach and, if warranted will be used to evaluate and implement interim corrective measures for specific buildings.

The results of the VI investigation will be documented in a technical report to be submitted to the U.S. EPA.

## **5. Schedule**

Field activities will commence approximately 30 days following U.S. EPA approval of this Work Plan. It is expected that the vapor intrusion results will be received and the data validation and assessment completed approximately 75 days following the completion of all field work, at which time the technical report will be prepared and submitted to U.S. EPA. Therefore the expected duration of this investigation/evaluation will be approximately 8 months.

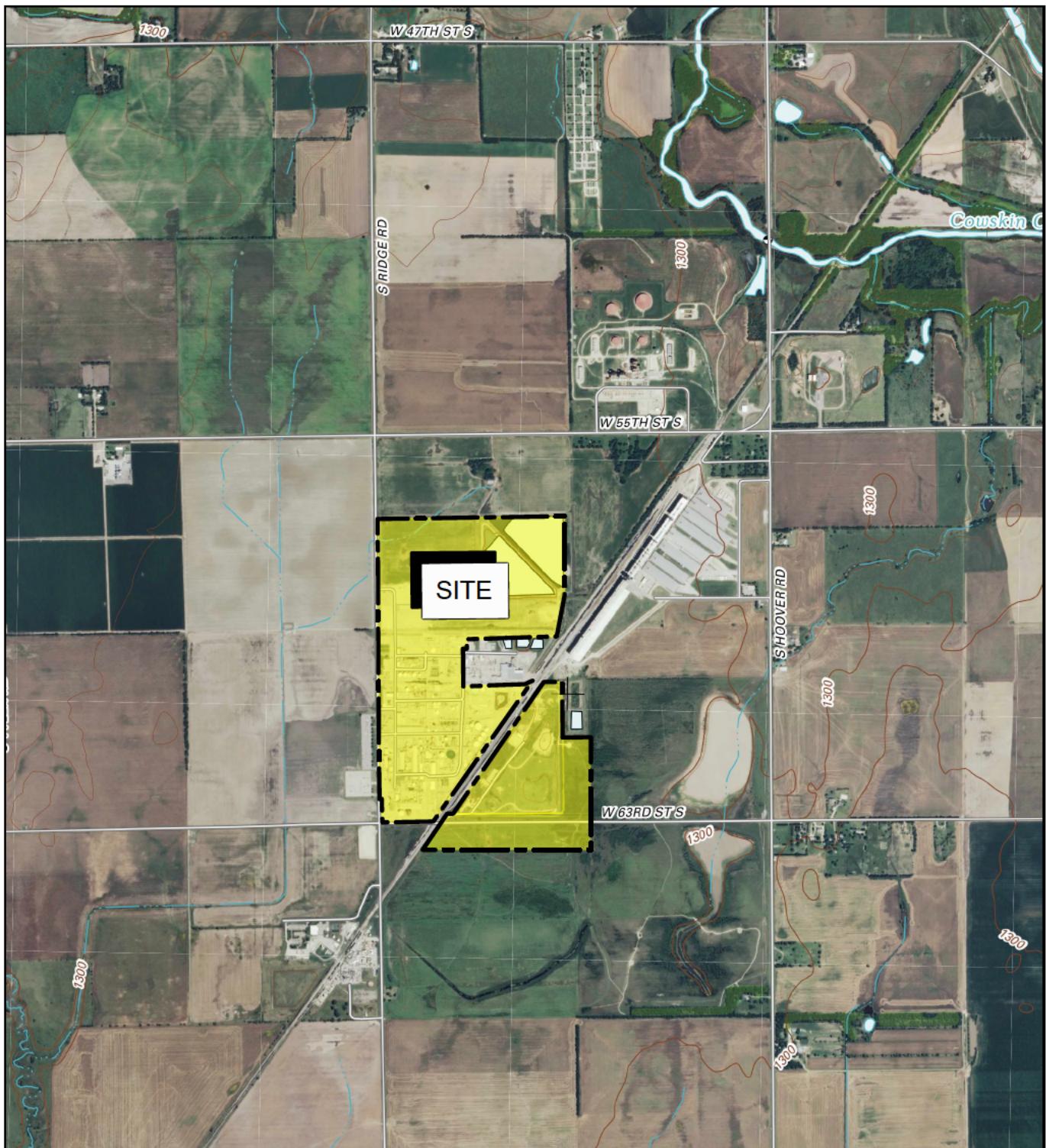
## **6. References**

- CRA, 2009a. Letter from B. Clegg to D. Garrett providing OCC's Responses to U.S. EPA Comments and Evaluation of Vapor Intrusion Pathway dated May 8.
- CRA, 2009b. Letter from B. Clegg to D. Garrett providing OCC's Responses to U.S. EPA's Comments and Evaluation of Vapor Intrusion Pathway dated September 14.
- CRA, 2009c. On-Site Vapor Intrusion Investigation, Assessment, and Interim Corrective Measures Implementation, Glenn Springs Holdings, Inc., Occidental Chemical Corporation Facility, Wichita, Kansas, September.
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- CRA, 2010a Letter from B. Clegg to D. Garrett providing OCC's Response to U.S. EPA's Comments Operation and Maintenance Plan for On-Site Vapor Intrusion Interim Corrective Measures at the Control Laboratory, Technical Center, and Administration Building dated December 20.
- CRA, 2010b. Operation and Maintenance Plan for On-Site Vapor Intrusion Interim Corrective Measures at the Control Laboratory, Technical Center and Administration Building Occidental Chemical Corporation Wichita, Kansas, December.
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- Shaw Environmental, Inc., 2009. Revised Soils Gas Sampling Work Plan, Occidental Chemical Corporation, Wichita, Kansas, July 25.
- U.S. EPA, 2009. Letter from D. Garrett to J. Somoano providing U.S. EPA's Comments on 'Sub-Slab Soils Gas Sampling Report' dated March 19.

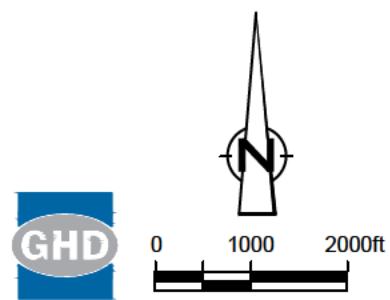
U.S. EPA, 2011. Letter from David Garrett to Juan Somoano providing U.S. EPA's approval of the 'Revised Supplemental Quarterly Off-Site Soil Gas Monitoring Report' dated January 27.

U.S. EPA, 2015a. OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air, U.S. EPA Office of Solid Waste and Emergency Response, Publication 9200.2-154, June.

U.S. EPA, 2015b. Vapor Intrusion Screening Level (VISL) Calculator (XLSM) available at <http://www.epa.gov/vaporintrusion#Item6>.



BASE SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE;  
BAYNEVILLE, KANSAS 2012



KANSAS

WICHITA ■

figure 1  
FACILITY LOCATION  
OCCIDENTAL CHEMICAL CORPORATION  
*Wichita, Kansas*

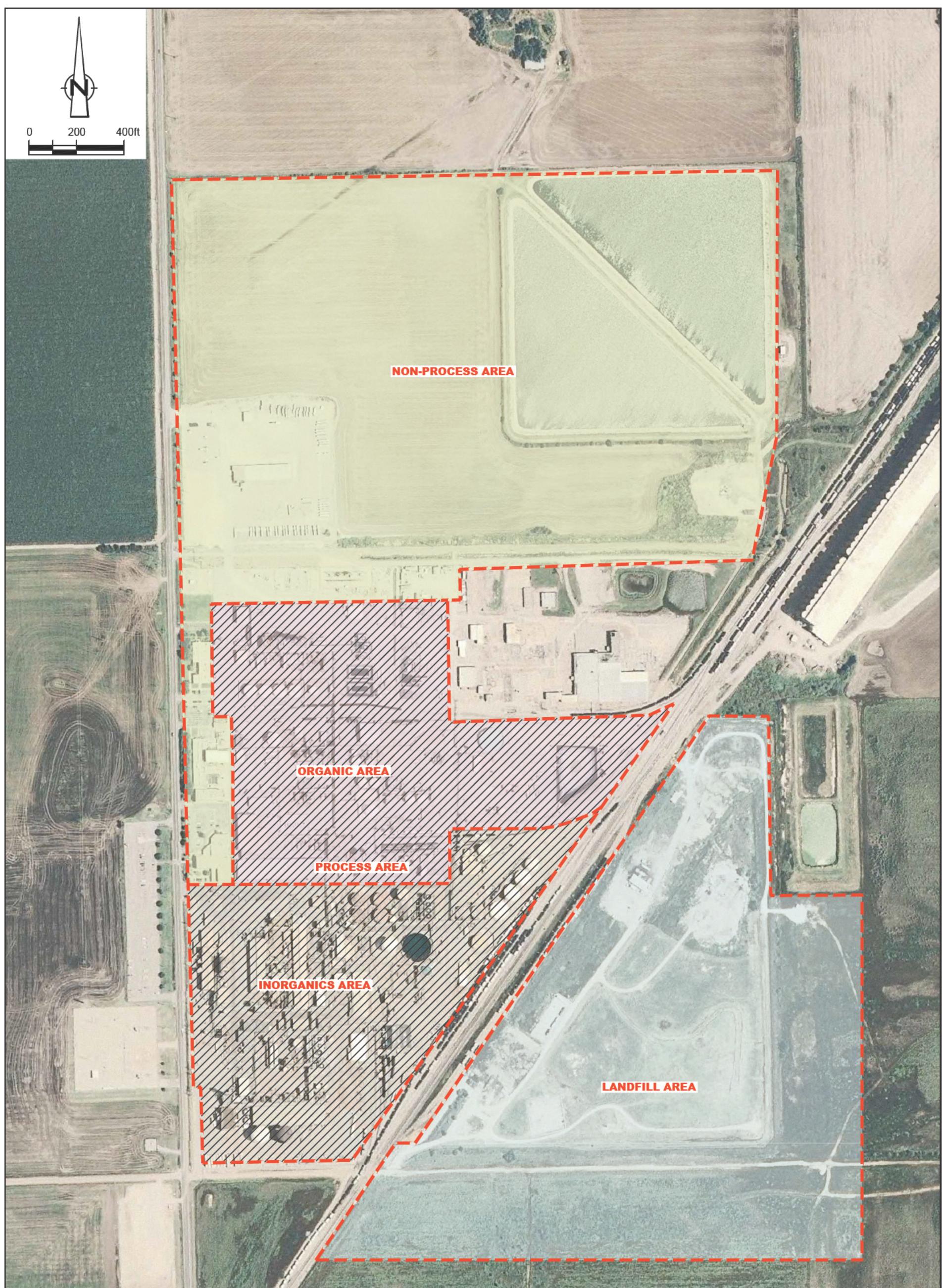


figure 2  
EXPOSURE AREAS  
OCCIDENTAL CHEMICAL CORPORATION  
*Wichita, Kansas*

PROCESS AREA



AERIAL: NAIP, 2010.

54046-D21136(057)GN-WA002 JAN 11, 2016

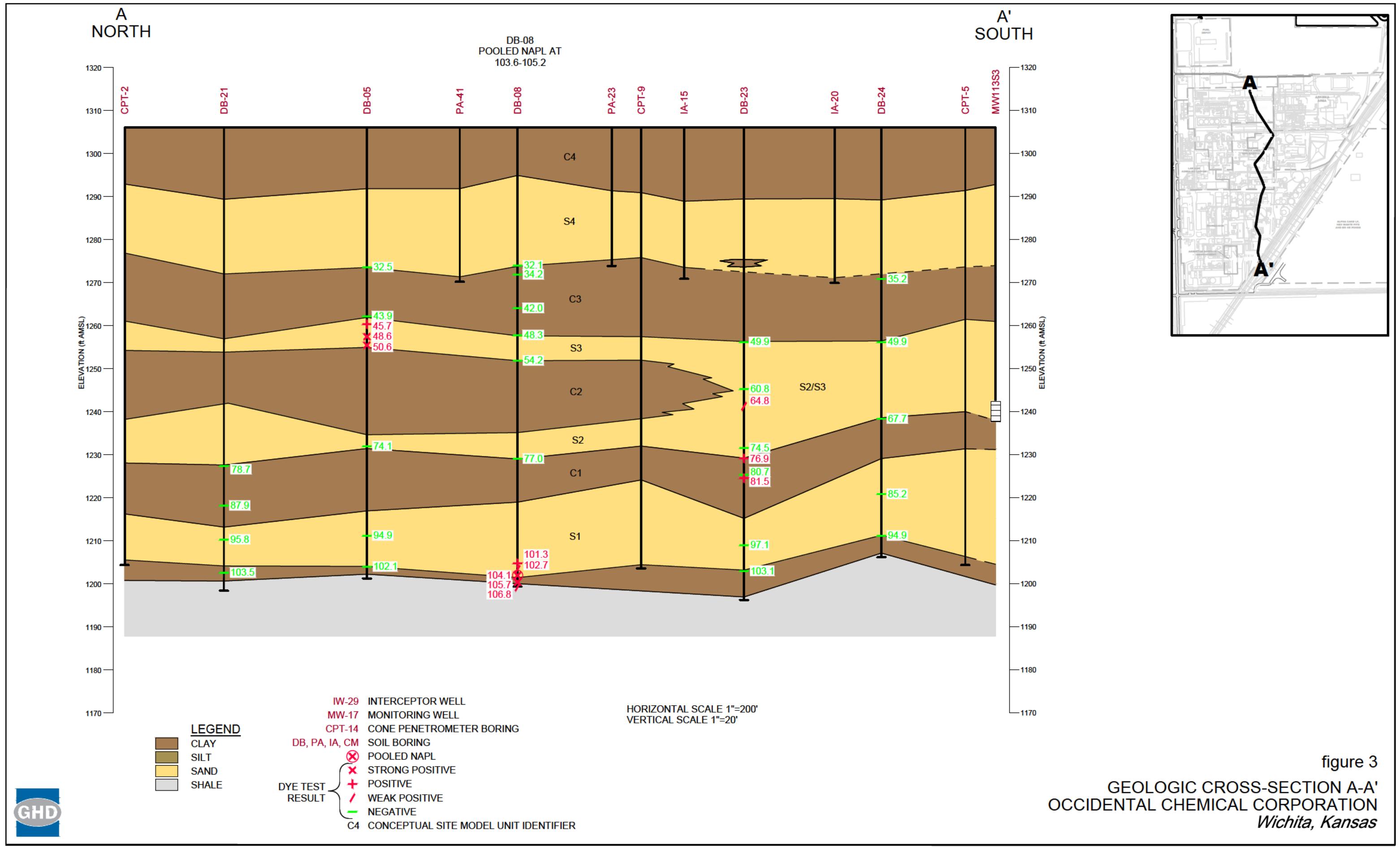


figure 3

GEOLOGIC CROSS-SECTION A-A'  
OCCIDENTAL CHEMICAL CORPORATION  
Wichita, Kansas

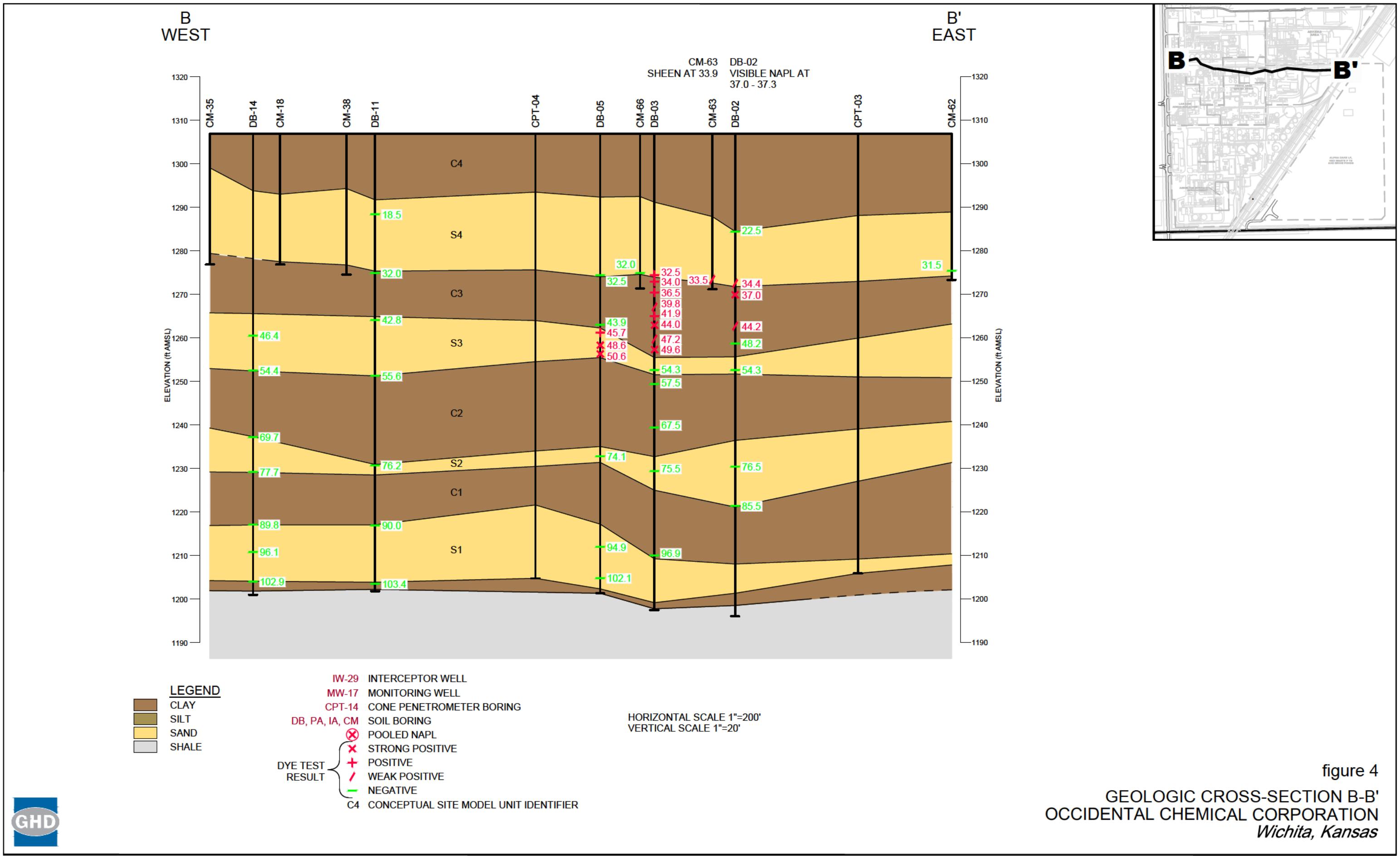


figure 4

GEOLOGIC CROSS-SECTION B-B'  
OCCIDENTAL CHEMICAL CORPORATION  
*Wichita, Kansas*



NAIP Imagery of 2015 Kansas – U.S. Department of Agriculture (USDA) Farm Service Agency, Aerial Photography Field Office.  
Datum: NAD 83 Projection: State Plane Kansas South



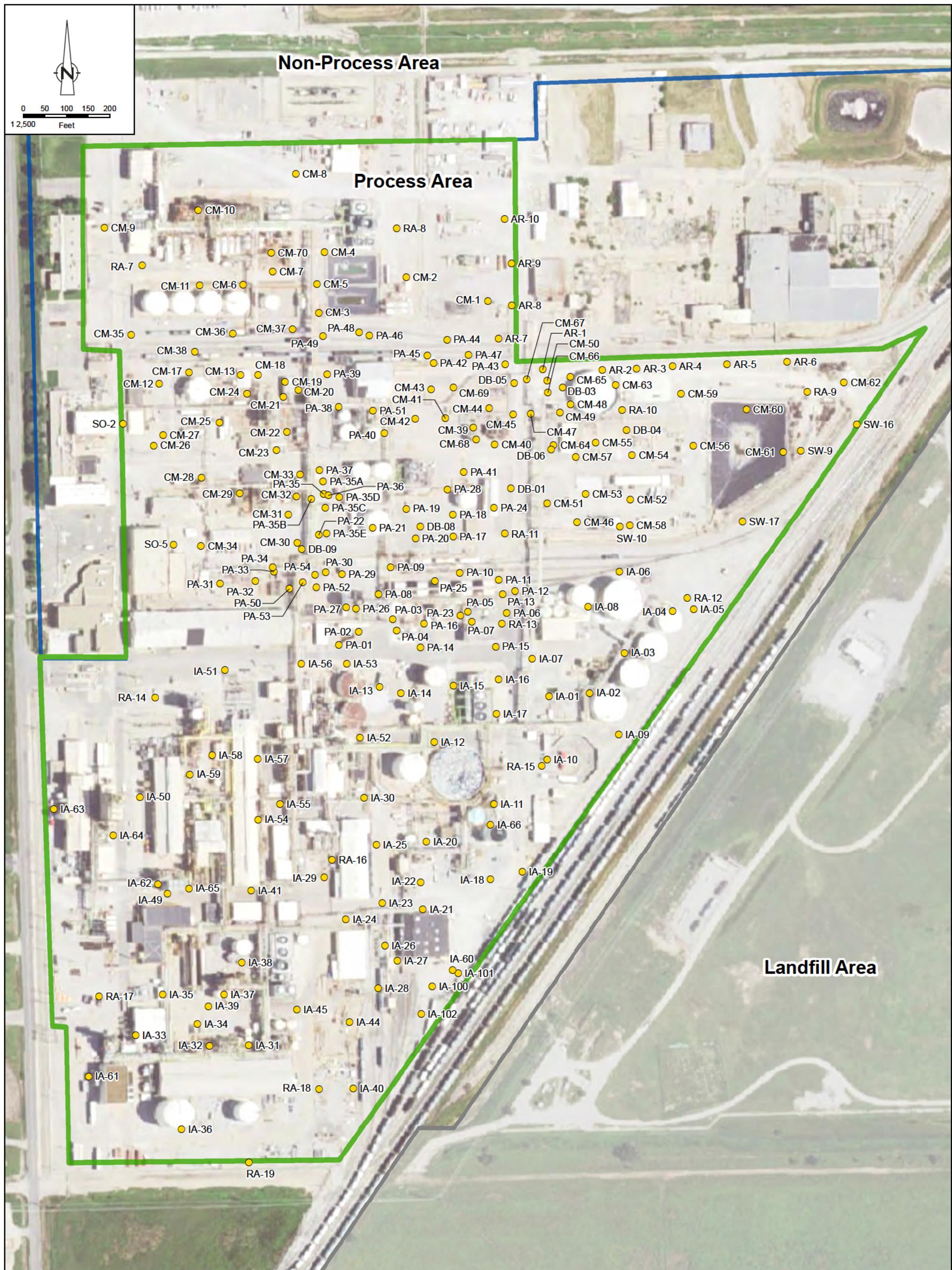
#### Legend

- Soil Boring Locations
- Landfill Area
- Non-Process Area
- Process Area

Note: Soil data from these borings were used in the occurrence, distribution, and selection of COPCs as identified in Table 1.

figure 5

SOIL SAMPLE LOCATIONS NON-PROCESS AREA  
OCCIDENTAL CHEMICAL CORPORATION  
Wichita, Kansas



NAIP Imagery of 2015 Kansas – U.S. Department of Agriculture (USDA) Farm Service Agency, Aerial Photography Field Office.  
Datum: NAD 83 Projection: State Plane Kansas South



#### Legend

- Soil Boring Locations
- Landfill Area
- Non-Process Area
- Process Area

Note: Soil data from these borings were used in the occurrence, distribution, and selection of COPCs as identified in Table 3.

figure 6

**SOIL SAMPLE LOCATIONS PROCESS AREA  
OCCIDENTAL CHEMICAL CORPORATION  
Wichita, Kansas**



NAIP Imagery of 2015 Kansas – U.S. Department of Agriculture (USDA) Farm Service Agency, Aerial Photography Field Office.  
Datum: NAD 83 Projection: State Plane Kansas South



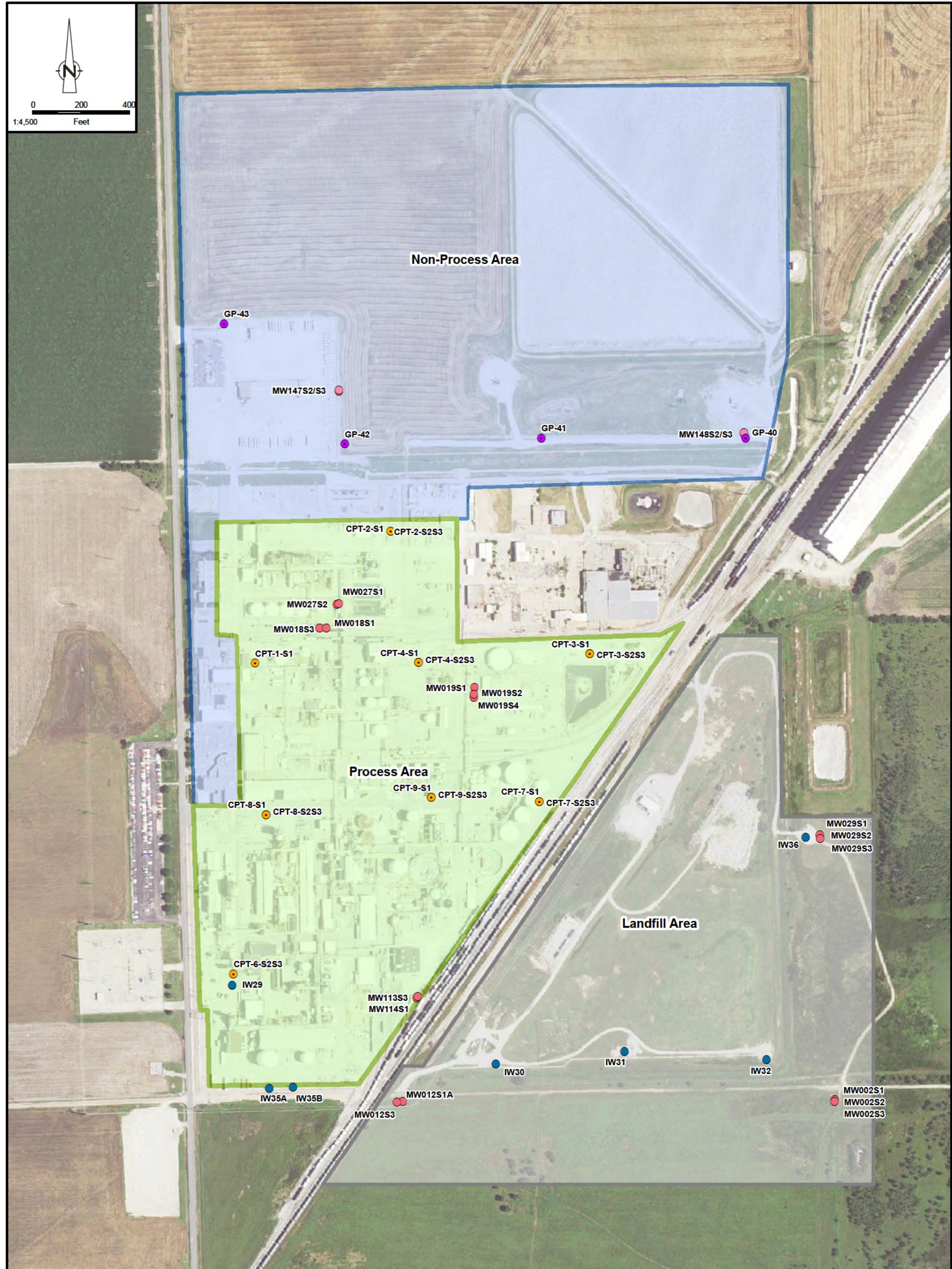
#### Legend

- Soil Boring Locations
- Landfill Area
- Non-Process Area
- Process Area

Note: Soil data from these borings were used in the occurrence, distribution, and selection of COPCs as identified in Table 5.

figure 7

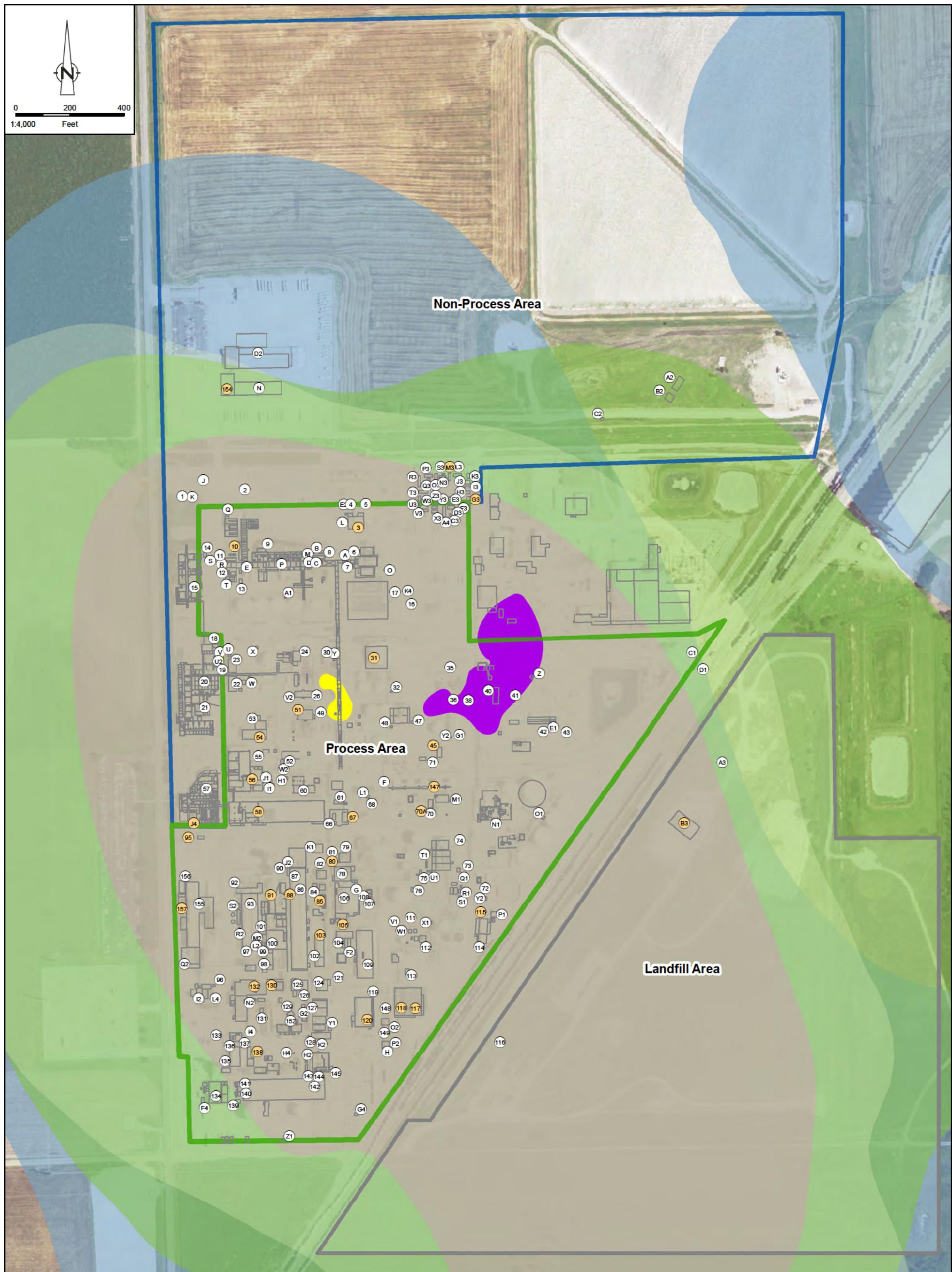
SOIL SAMPLE LOCATIONS LANDFILL AREA  
OCCIDENTAL CHEMICAL CORPORATION  
Wichita, Kansas



MONITORING WELL, INTERCEPTOR WELL AND PIEZOMETER LOCATIONS  
OCCIDENTAL CHEMICAL CORPORATION  
Wichita, Kansas

figure 8





NAIP Imagery of 2015 Kansas – U.S. Department of Agriculture (USDA) Farm Service Agency, Aerial Photography Field Office.  
Buildings: OCC Drawing No. 27-1-5-16117\_E; Plant Map Facility Siting Analysis; Datum: NAD 83 Projection: State Plane Kansas South



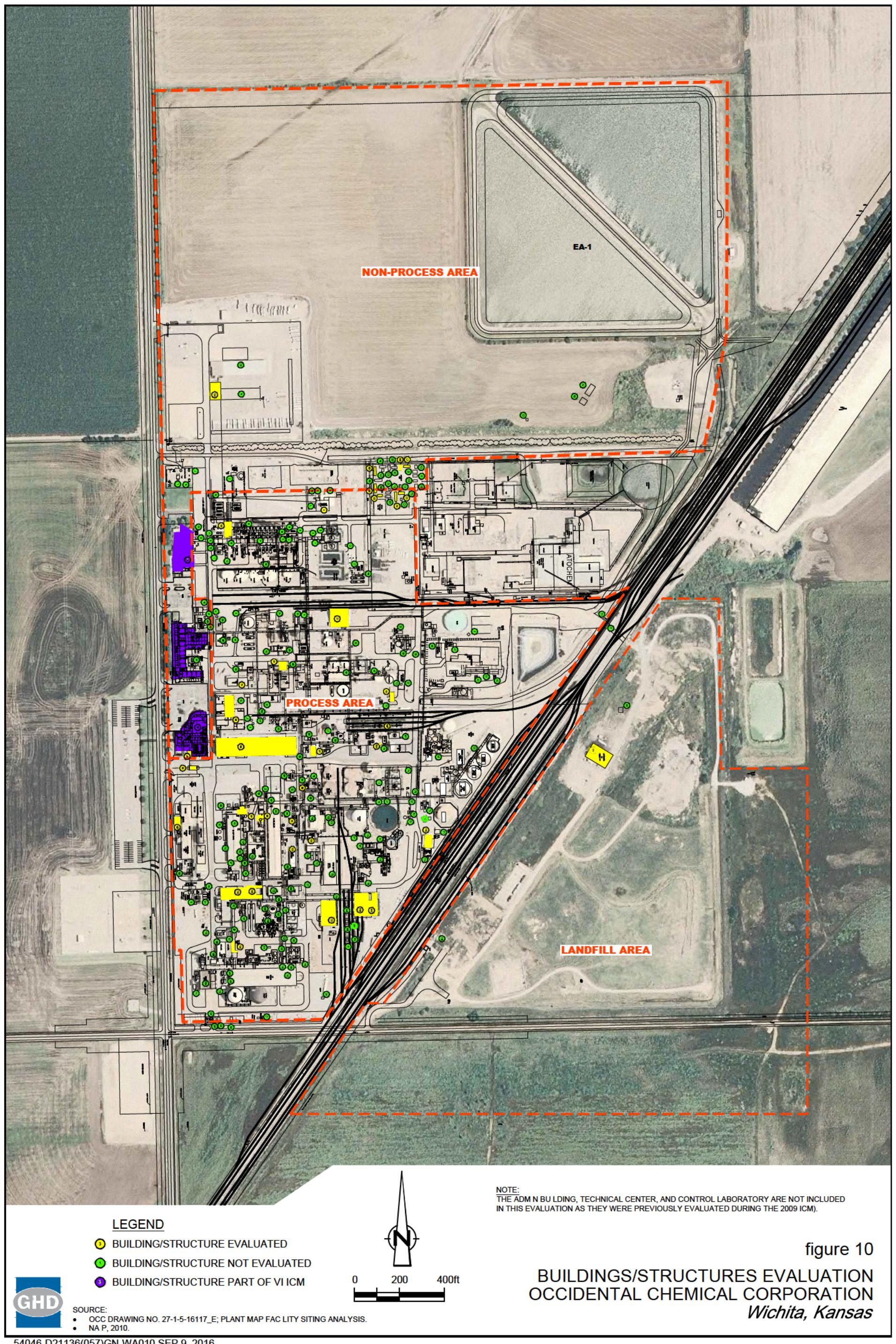
**Legend**

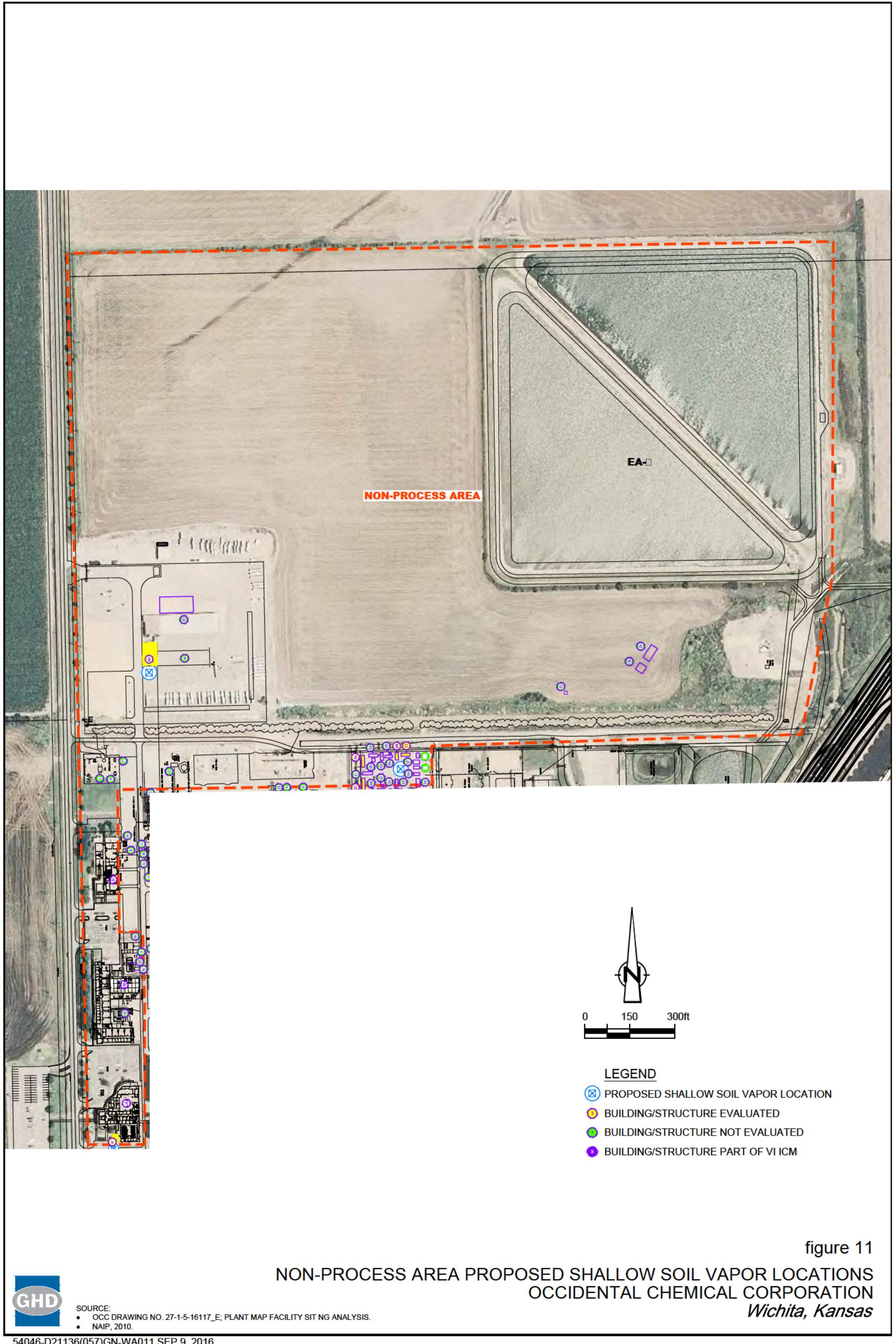
Building/Structure Status	Symbol	Description
① not Evaluated	Blue square	Non-Process Area
② Building/Structure Evaluated	Green square	Process Area
③ Building/Structure Evaluated	Grey square	Landfill Area

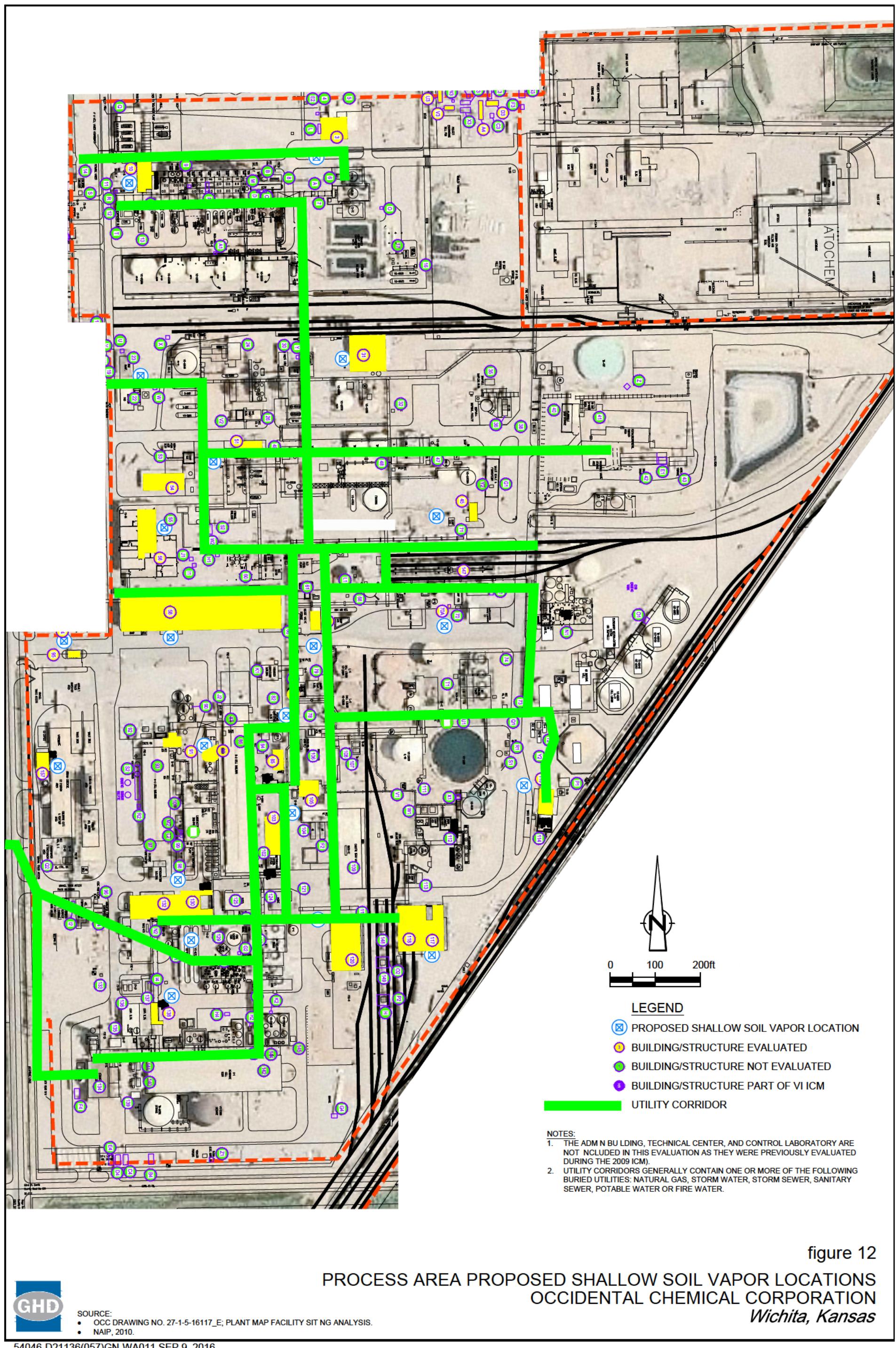
Chemical	Concentration
Hexachlorobutadiene	0.0003 mg/L
Hexachloroethane	0.00009 mg/L
Tetrachloroethene	0.005 mg/L
CT PCE DNAPL	(Yellow area)
Carbon Tetrachloride	0.005 mg/L
HEX DNAPL	(Purple area)

figure 9

S2/S3 GROUNDWATER PLUMES  
AND DNAPL LIMITS S4/C3 INTERFACE  
OCCIDENTAL CHEMICAL CORPORATION  
Wichita, Kansas







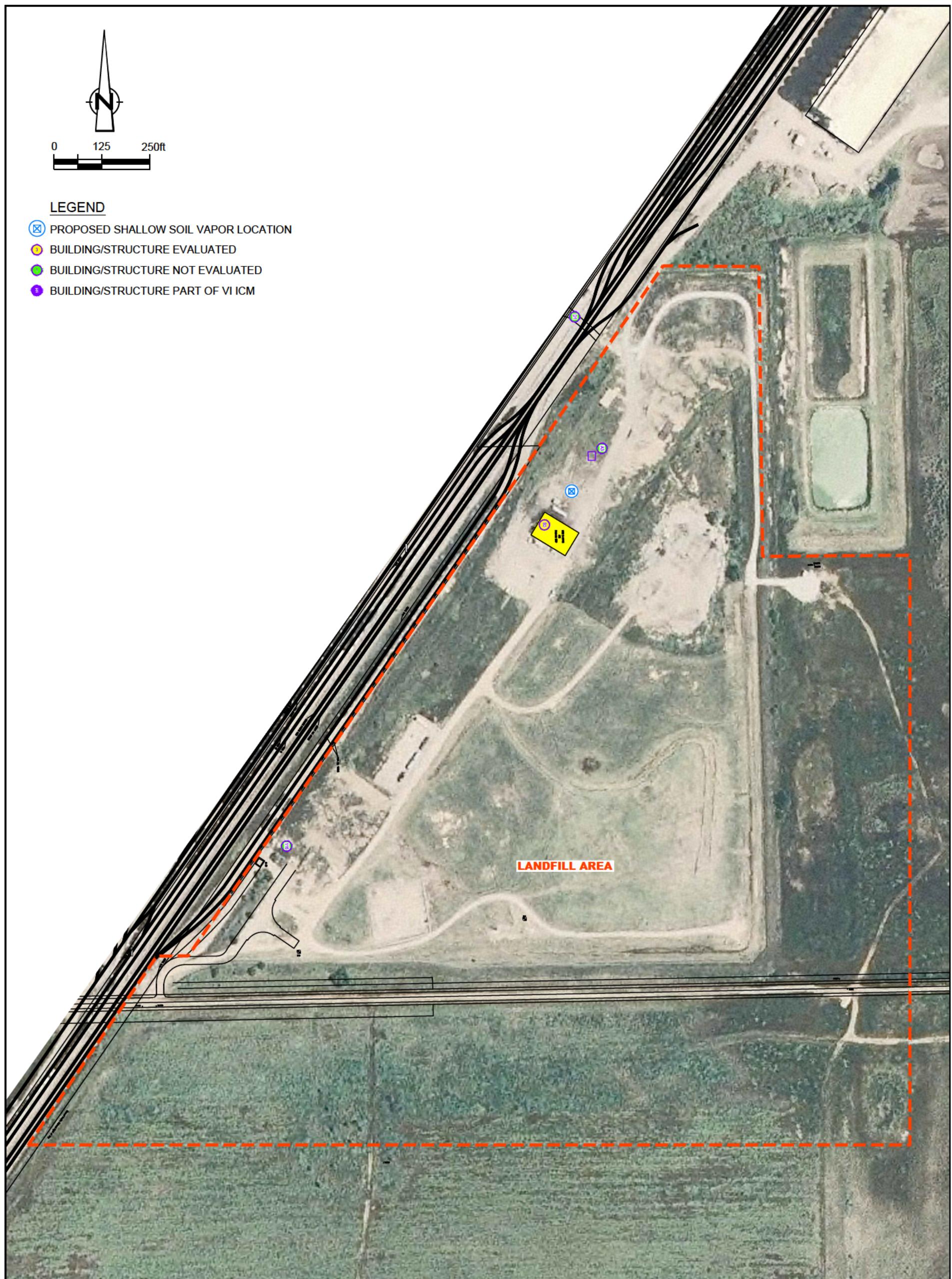


figure 13

LANDFILL AREA PROPOSED SHALLOW SOIL VAPOR LOCATIONS  
OCCIDENTAL CHEMICAL CORPORATION  
*Wichita, Kansas*



SOURCE:  
 • OCC DRAWING NO. 27-1-5-16117\_E; PLANT MAP FACILITY SIT NG ANALYSIS.  
 • NAIP, 2010.

Table 1

**Occurrence, Distribution, and Selection of Chemicals of Potential Concern (COPCs) in Surface and Subsurface Soil**  
**Non-Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Scenario Timeframe: Current/Future  
Medium: Soil (0-10 ftbgs)  
Exposure Medium: Soil

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration (1)	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency (2)	Range of Detection Limits (2)	COPC Flag	Rationale for Contaminant Deletion or Selection (3)
	<b>Herbicides</b>										
94-75-7	2,4-Dichlorophenoxyacetic Acid (2,4-D)	ND		ND		mg/kg	--	0/31	0.02 - 0.06	ND	
87-86-5	Pentachlorophenol	0.04		0.08		mg/kg	SO-4; 15-17 ftbgs (07/24/13)	1/31	0.02 - 0.06	NVOC	
	<b>Semi-Volatile Organic Compounds</b>										
4901-51-3	2,3,4,5-Tetrachlorophenol	ND		ND		mg/kg	--	0/31	2.1 - 2.9	ND	
58-90-2	2,3,4,6-Tetrachlorophenol	ND		ND		mg/kg	--	0/31	2.1 - 2.9	ND	
95-95-4	2,4,5-Trichlorophenol	ND		ND		mg/kg	--	0/31	0.5 - 0.7	ND	
88-06-2	2,4,6-Trichlorophenol	ND		ND		mg/kg	--	0/31	0.5 - 0.7	ND	
120-83-2	2,4-Dichlorophenol	ND		ND		mg/kg	--	0/31	0.5 - 0.7	ND	
583-78-8	2,5-Dichlorophenol	ND		ND		mg/kg	--	0/31	1 - 1.4	ND	
87-65-0	2,6-Dichlorophenol	ND		ND		mg/kg	--	0/31	0.5 - 0.7	ND	
95-57-8	2-Chlorophenol	ND		ND		mg/kg	--	0/31	0.5 - 0.7	ND	
--	3/4-Chlorophenol	ND		ND		mg/kg	--	0/31	2.1 - 2.9	ND	
319-84-6	alpha-BHC	0.03		0.03		mg/kg	SO-4; 15-17 ftbgs (07/24/13)	1/31	0.02 - 0.03	NVOC	
319-85-7	beta-BHC	0.03		0.21		mg/kg	SO-4; 5-7 ftbgs (07/24/13)	7/31	0.02 - 0.03	NVOC	
608-73-1	delta-BHC	ND		ND		mg/kg	--	0/31	0.02 - 0.03	ND	
58-89-9	gamma-BHC (lindane)	ND		ND		mg/kg	--	0/31	0.02 - 0.03	ND	
118-74-1	Hexachlorobenzene	0.07		7.8		mg/kg	SO-4; 15-17 ftbgs (07/24/13)	3/31	0.02 - 0.03	X VOC	
87-68-3	Hexachlorobutadiene	0.05		0.24		mg/kg	SO-4; 15-17 ftbgs (07/24/13)	2/31	0.02 - 0.03	X VOC	
67-72-1	Hexachloroethane	0.11		0.13		mg/kg	SO-4; 15-17 ftbgs (07/24/13)	1/31	0.02 - 0.03	X VOC	
	<b>Volatile Organic Compounds</b>										
71-55-6	1,1,1-Trichloroethane	ND		ND		mg/kg	--	0/32	0.0039 - 0.03	ND	
107-06-2	1,2-Dichloroethane	ND		ND		mg/kg	--	0/32	0.0039 - 0.03	ND	
78-87-5	1,2-Dichloropropane	ND		ND		mg/kg	--	0/32	0.0039 - 0.03	ND	
71-43-2	Benzene	ND		ND		mg/kg	--	0/36	0.0039 - 0.03	ND	
56-23-5	Carbon tetrachloride	0.0359		0.987		mg/kg	SO-4; 25-26 ftbgs (07/24/13)	6/32	0.0039 - 0.03	X VOC	
67-66-3	Chloroform (Trichloromethane)	0.0058		1.17		mg/kg	SO-4; 25-26 ftbgs (07/24/13)	8/32	0.0039 - 0.03	X VOC	
74-87-3	Chloromethane (Methyl chloride)	ND		ND		mg/kg	--	0/32	0.0039 - 0.03	ND	
75-09-2	Methylene chloride	0.04		0.04		mg/kg	SO-6; 5-7 ftbgs (07/25/13)	1/32	0.0039 - 0.03	X VOC	
127-18-4	Tetrachloroethene	0.0118		31.7		mg/kg	SO-4; 15-17 ftbgs (07/24/13)	7/32	0.0039 - 0.03	X VOC	
79-01-6	Trichloroethene	0.2		0.2		mg/kg	SO-3; 15-17 ftbgs (07/24/13)	1/32	0.0039 - 0.03	X VOC	
75-01-4	Vinyl chloride	ND		ND		mg/kg	--	0/32	0.0039 - 0.03	ND	

Table 1

**Occurrence, Distribution, and Selection of Chemicals of Potential Concern (COPCs) in Surface and Subsurface Soil**  
**Non-Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Scenario Timeframe: Current/Future  
 Medium: Soil (0-10 ftbgs)  
 Exposure Medium: Soil

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration (1)	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency (2)	Range of Detection Limits (2)	COPC Flag	Rationale for Contaminant Deletion or Selection (3)
--	<b>General Chemistry</b> Chloride	11		850		mg/kg	AR-12; 5-7 ftbgs (04/09/12)	22/31	10 - 14		NAT

## Notes:

- C Carcinogenic; analyte considered to be a carcinogen.
- NC Non-Carcinogenic; analyte considered to be a non-carcinogen.
- Not Available

- (1) Minimum/maximum detected concentration.
- (2) Based on data collected from sampling locations: AR-11, AR-12, FD-1, FD-2, FD-3, FD-4, NA-01, NA-02, RA-1, RA-2, RA-3, RA-4, RA-5, RA-6, SO-1, SO-3, SO-4, SO-6, SW-1, SW-2, SW-3, SW-4, SW-5, SW-6, SW-7, SW-8, SW-13, SW-14.
- (3) Rationale Codes

Selection Reason : Analyte considered a Volatile Organic Compound (VOC)<sup>(4)</sup>

Deletion Reason : Analyte Not considered a Volatile Organic Compound (NVOC)

Not Detected (ND)

Naturally Occurring (NAT)

- (4) OSWER Vapor Intrusion Assessment, Vapor Intrusion Screening Level (VISL) Calculator Version 3.4, June 2015 RSLs and updates.

The following rule from VISL was used to determine a chemical's volatility: vapor pressure greater than 1 mm Hg or Henry's law constant is greater than 0 00001 atm·m<sup>3</sup>/mole.

Table 2

**Occurrence, Distribution, and Selection of Chemicals of Potential Concern (COPCs) in Groundwater**  
**Non-Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration (1)	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency (2)	Range of Detection Limits (2)	Concentration Used for Screening (3)	Screening Toxicity Value (4)	COPC Flag	Rationale for Contaminant Deletion or Selection (5)
	<b>Herbicides</b>												
94-75-7	2,4-Dichlorophenoxyacetic Acid (2,4-D)	ND		ND		µg/L	--	0/6	1	ND	--	N	NVOC
87-86-5	Pentachlorophenol	ND		ND		µg/L	--	0/6	0.5	ND	--	C	NVOC
	<b>Semi-Volatile Organic Compounds</b>												
4901-51-3	2,3,4,5-Tetrachlorophenol	ND		ND		µg/L	--	0/6	5	ND	--		NVOC
58-90-2	2,3,4,6-Tetrachlorophenol	ND		ND		µg/L	--	0/6	5	ND	--	N	NVOC
95-95-4	2,4,5-Trichlorophenol	ND		ND		µg/L	--	0/6	5	ND	--	N	ND
88-06-2	2,4,6-Trichlorophenol	ND		ND		µg/L	--	0/6	5	ND	--	N	NVOC
120-83-2	2,4-Dichlorophenol	ND		ND		µg/L	--	0/6	5	ND	--	N	NVOC
583-78-8	2,5-Dichlorophenol	ND		ND		µg/L	--	0/6	5	ND	--		ND
87-65-0	2,6-Dichlorophenol	ND		ND		µg/L	--	0/6	5	ND	--		NVOC
95-57-8	2-Chlorophenol	ND		ND		µg/L	--	0/6	5	ND	--	N	ND
--	3/4-Chlorophenol	ND		ND		µg/L	--	0/6	5	ND	--		ND
319-84-6	alpha-BHC	0.029		0.076		µg/L	MW148S2/S3 (11/09/14)	3/6	0.011	0.076	--	C	NVOC
319-85-7	beta-BHC	2.45		4.13		µg/L	MW148S2/S3 (11/09/14)	3/6	0.037	4.13	--	C	NVOC
608-73-1	delta-BHC	0.06		0.06		µg/L	MW148S2/S3 (11/09/14)	1/6	0.05	0.06	--	C	NVOC
58-89-9	gamma-BHC (lindane)	ND		ND		µg/L	--	0/6	0.052	ND	--	C	NVOC
118-74-1	Hexachlorobenzene	ND		ND		µg/L	--	0/6	0.1	ND	0.9	C	ND
87-68-3	Hexachlorobutadiene	ND		ND		µg/L	--	0/6	0.02	ND	2.7	C	ND
67-72-1	Hexachloroethane	ND		ND		µg/L	--	0/6	0.02	ND	15	C	ND
	<b>Volatile Organic Compounds</b>												
71-55-6	1,1,1-Trichloroethane	ND		ND		µg/L	--	0/10	0.5 - 1	ND	4800	N	ND
107-06-2	1,2-Dichloroethane	ND		ND		µg/L	--	0/10	0.5 - 1	ND	16	C	ND
78-87-5	1,2-Dichloropropane	ND		ND		µg/L	--	0/10	0.5 - 1	ND	17	C	ND
71-43-2	Benzene	1.4		1.4		µg/L	GP-40 (09/14/12)	1/10	0.5 - 1	1.4	11	C	BSC
56-23-5	Carbon tetrachloride	1.2		43.6		µg/L	MW147S2/S3 (11/05/15)	7/10	0.5 - 1	43.6	2.8	C	X ASC
67-66-3	Chloroform (Trichloromethane)	4.5		115		µg/L	GP-41 (09/14/12)	7/10	0.5 - 1	115	5.4	C	X ASC
74-87-3	Chloromethane (Methyl chloride)	ND		ND		µg/L	--	0/10	0.5 - 1	ND	140	N	ND
75-09-2	Methylene chloride	0.6		0.6		µg/L	GP-41 (09/14/12)	1/10	0.5 - 1	0.6	2900	N	BSC
127-18-4	Tetrachloroethene	1.7		9.5		µg/L	GP-41 (09/14/12)	8/10	0.5 - 1	9.5	41	N	BSC
79-01-6	Trichloroethene	1		2.4		µg/L	GP-41 (09/14/12)	5/10	0.5 - 1	2.4	3.5	N	BSC
75-01-4	Vinyl chloride	ND		ND		µg/L	--	0/10	0.5 - 1	ND	3.2	C	ND

Table 2

**Occurrence, Distribution, and Selection of Chemicals of Potential Concern (COPCs) in Groundwater**  
**Non-Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration (1)	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency (2)	Range of Detection Limits (2)	Concentration Used for Screening (3)	Screening Toxicity Value (4)	COPC Flag	Rationale for Contaminant Deletion or Selection (5)
--	General Chemistry Chloride	20400		1680000		µg/L	GP-40 (09/14/12)	10/10	--	1680000	--		NAT

Notes:

C Carcinogenic; analyte considered to be a carcinogen.

NC Non-Carcinogenic; analyte considered to be a non-carcinogen.

-- Not Available

(1) Minimum/maximum detected concentration.

(2) Based on data collected from sampling locations: GP-40, GP-41, GP-42, GP-43, MW147S2/S3, MW148S2/S3.

(3) Maximum concentration used to screen against screening toxicity value.

(4) OSWER Vapor Intrusion Assessment, Vapor Intrusion Screening Level (VISL) Calculator Version 3.4, November 2015 RSLs.

Commercial Land Use, TCR = 1E-06, THQ = 0.1, Average groundwater temperature = 15.5°C.

(5) Rationale Codes

Selection Reason : Maximum detected above Screening Criterion (ASC)

Deletion Reason : Maximum detected below Screening Criterion (BSC)

Not Detected (ND)

Naturally Occurring (NAT)

Table 3

**Occurrence, Distribution, and Selection of Chemicals of Potential Concern (COPCs) in Surface and Subsurface Soil**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Scenario Timeframe: Current/Future  
Medium: Soil (0-10 ftbgs)  
Exposure Medium: Soil

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration (1)	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency (2)	Range of Detection Limits (2)	COPC Flag	Rationale for Contaminant Deletion or Selection (3)
	<b>Herbicides</b>										
94-75-7	2,4-Dichlorophenoxyacetic Acid (2,4-D)	0.02		6		mg/kg	PA-53; 3-5 ftbgs (03/09/12)	14/304	0.02 - 5		NVOC
87-86-5	Pentachlorophenol	0.02		1000		mg/kg	PA-54; 1-3 ftbgs (03/09/12)	87/304	0.02 - 0.03		NVOC
	<b>Semi-Volatile Organic Compounds</b>										
4901-51-3	2,3,4,5-Tetrachlorophenol	32		32		mg/kg	CM-68; 10-12 ftbgs (07/23/13)	1/303	1.5 - 49		NVOC
58-90-2	2,3,4,6-Tetrachlorophenol	4.1		120		mg/kg	PA-53; 3-5 ftbgs (03/09/12)	7/303	1.5 - 2.9		NVOC
95-95-4	2,4,5-Trichlorophenol	ND		ND		mg/kg	--	0/303	0.4 - 10		ND
88-06-2	2,4,6-Trichlorophenol	1.2		458		mg/kg	PA-53; 3-5 ftbgs (03/09/12)	9/303	0.4 - 3		NVOC
120-83-2	2,4-Dichlorophenol	0.6		296		mg/kg	PA-53; 3-5 ftbgs (03/09/12)	11/303	0.4 - 3		NVOC
583-78-8	2,5-Dichlorophenol	ND		ND		mg/kg	--	0/303	0.75 - 24		ND
87-65-0	2,6-Dichlorophenol	1.3		46		mg/kg	PA-53; 3-5 ftbgs (03/09/12)	2/303	0.4 - 3		NVOC
95-57-8	2-Chlorophenol	42		42		mg/kg	PA-53; 3-5 ftbgs (03/09/12)	1/303	0.4 - 3	X	VOC
--	3,4-Chlorophenol	64		64		mg/kg	PA-53; 3-5 ftbgs (03/09/12)	1/303	1.5 - 10	X	VOC
319-84-6	alpha-BHC	0.03		40		mg/kg	PA-52; 1-3 ftbgs (03/09/12)	31/303	0.02 - 200		NVOC
319-85-7	beta-BHC	0.02		50		mg/kg	RA-16; 1.5-2 ftbgs (06/25/15)	67/303	0.02 - 200		NVOC
608-73-1	delta-BHC	0.04		0.17		mg/kg	CM-30; 5-7.5 ftbgs (03/15/12)	3/302	0.02 - 200		NVOC
58-89-9	gamma-BHC (lindane)	0.03	J	1		mg/kg	CM-33; 39-41 ftbgs (03/16/12)	9/303	0.02 - 200		NVOC
118-74-1	Hexachlorobenzene	0.01		170	J	mg/kg	RA-16; 1.5-2 ftbgs (06/25/15)	85/303	0.02 - 200	X	VOC
87-68-3	Hexachlorobutadiene	0.02		8300		mg/kg	DB-05; 49.5-50 ftbgs (08/24/13)	92/304	0.02 - 100	X	VOC
67-72-1	Hexachloroethane	0.02		1700	J	mg/kg	PA-35C; 8-9 ftbgs (01/10/12)	64/304	0.02 - 100	X	VOC
	<b>Volatile Organic Compounds</b>										
71-55-6	1,1,1-Trichloroethane	0.0049		86		mg/kg	CM-22; 37.5-40.5 ftbgs (03/13/12)	51/304	0.0035 - 10	X	VOC
107-06-2	1,2-Dichloroethane	0.0095		42.6		mg/kg	CM-25; 5.5-7.5 ftbgs (03/14/12)	48/304	0.0035 - 20	X	VOC
78-87-5	1,2-Dichloropropane	0.011		18.6		mg/kg	CM-25; 5.5-7.5 ftbgs (03/14/12)	28/304	0.0035 - 20	X	VOC
71-43-2	Benzene	0.0053		1.79	J	mg/kg	IA-09; 2-4 ftbgs (09/01/10)	7/304	0.0035 - 20	X	VOC
56-23-5	Carbon tetrachloride	0.0076		2850		mg/kg	CM-22; 37.5-40.5 ftbgs (03/13/12)	200/304	0.004 - 2	X	VOC
67-66-3	Chloroform (Trichloromethane)	0.0049		496	J	mg/kg	PA-35C; 0.9-1.4 ftbgs (01/10/12)	210/304	0.0041 - 10	X	VOC
74-87-3	Chloromethane (Methyl chloride)	0.04		0.04		mg/kg	CM-41; 16-18 ftbgs (03/30/12)	1/304	0.0035 - 20	X	VOC
75-09-2	Methylene chloride	0.0152		32		mg/kg	DB-09; 46-46.5 ftbgs (09/06/13)	56/304	0.0035 - 20	X	VOC
127-18-4	Tetrachloroethene	0.007		2640		mg/kg	CM-22; 37.5-40.5 ftbgs (03/13/12)	239/304	0.0042 - 0.5	X	VOC
79-01-6	Trichloroethene	0.0059		9.7		mg/kg	DB-08; 41.5-42 ftbgs (09/06/13)	106/304	0.0035 - 20	X	VOC
75-01-4	Vinyl chloride	0.0046		0.2		mg/kg	CM-21; 5-7 ftbgs (03/13/12)	4/304	0.0035 - 20	X	VOC

Table 3

**Occurrence, Distribution, and Selection of Chemicals of Potential Concern (COPCs) in Surface and Subsurface Soil**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Scenario Timeframe: Current/Future  
Medium: Soil (0-10 ftbgs)  
Exposure Medium: Soil

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration (1)	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency (2)	Range of Detection Limits (2)	COPC Flag	Rationale for Contaminant Deletion or Selection (3)
--	<b>General Chemistry</b> Chloride	11		9400		mg/kg	IA-53; 6-8 ftbgs (09/29/10)	303/304	12		NAT

Notes:

C Carcinogenic; analyte considered to be a carcinogen.

NC Non-Carcinogenic; analyte considered to be a non-carcinogen.

-- Not Available

J Result is an estimated value.

(1) Minimum/maximum detected concentration.

(2) Based on data collected from sampling locations: AR-1, AR-2, AR-3, AR-4, AR-5, AR-6, AR-7, AR-8, AR-9, AR-10, CM-1, CM-2, CM-3, CM-4, CM-5, CM-6, CM-7, CM-8, CM-9, CM-10, CM-11, CM12, CM-13, CM-17, CM-18, CM-19, CM-20, CM-21, CM-22, CM-23, CM-24, CM-25, CM-26, CM-27, CM-28, CM-29, CM-30, CM-31, CM-32, CM-33, CM-34, CM-35, CM-36, CM-37, CM-38, CM-39, CM-40, CM-41, CM-42, CM-43, CM-44, CM-45, CM-46, CM-47, CM-48, CM-49, CM-50, CM-51, CM-52, CM-53, CM-54, CM-55, CM-56, CM-57, CM-58, CM-59, CM-60, CM-61, CM-62, CM-63, CM-64, CM-65, CM-66, CM-67, CM-68, CM-69, CM-70, IA-01, IA-02, IA-03, IA-04, IA-05, IA-06, IA-07, IA-08, IA-09, IA-10, IA-11, IA-12, IA-13, IA-14, IA-15, IA-16, IA-17, IA-18, IA-19, IA-20, IA-21, IA-22, IA-23, IA-24, IA-25, IA-26, IS-17, IA-28, IA-29, IA-30, IA-31, IA-32, IA-33, IA-34, IA-35, IA-36, IA-37, IA-38, IA-39, IA-40, IA-41, IA-44, IA-45, IA-49, IA-50, IA-51, IA-52, IA-53, IA-54, IA-55, IA-56, IA-57, IA-58, IA-59, IA-60, IA-61, IA-62, IA-63, IA-64, IA-65, IA-66, IA-100, IA-101, IA-102, PA-01, PA-02, PA-03, PA-04, PA-05, PA-06, PA-07, PA-08, PA-09, PA-10, PA-11, PA-12, PA-13, PA-14, PA-15, PA-16, PA-17, PA-18, PA-19, PA-20, PA-21, PA-22, PA-23, PA-24, PA-25, PA-26, PA-27, PA-28, PA-29, PA-30, PA-31, PA-32, PA-33, PA-34, PA-35, PA-35A, PA-35B, PA-35C, PA-35D, PA-35E, PA-36, PA-37, PA-38, PA-39, PA-40, PA-41, PA-43, PA-44, PA-45, PA-46, PA-47, PA-48, PA-49, PA-50, PA-51, PA-52, PA-53, PA-54, RA-7, RA-8, RA-9, RA-10, RA-11, RA-12, RA-13, RA-14, RA-15, RA-16, RA-17, RA-18, RA-19, SO-2, SO-5, SW-9, SW10, SW-16, SW-17.

(3) Rationale Codes

Selection Reason : Analyte considered a Volatile Organic Compound (VOC) <sup>(4)</sup>

Deletion Reason : Analyte Not considered a Volatile Organic Compound (NVOC)

Not Detected (ND)

Naturally Occurring (NAT)

(4) OSWER Vapor Intrusion Assessment, Vapor Intrusion Screening Level (VISL) Calculator Version 3.4, June 2015 RSLs and updates.

The following rule from VISL was used to determine a chemical's volatility: vapor pressure greater than 1 mm Hg or Henry's law constant is greater than 0.00001 atm·m<sup>3</sup>/mole.

Table 4

**Occurrence, Distribution, and Selection of Chemicals of Potential Concern (COPCs) in Groundwater**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration (1)	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency (2)	Range of Detection Limits (2)	Concentration Used for Screening (3)	Screening Toxicity Value (4)	COPC Flag	Rationale for Contaminant Deletion or Selection (5)
	<b>Herbicides</b>												
94-75-7	2,4-Dichlorophenoxyacetic Acid (2,4-D)	1.3		3500		µg/L	CPT-9-S2S3 (05/10/12)	32/63	1 - 2	3500	--	N	NVOC
87-86-5	Pentachlorophenol	0.5		670	J	µg/L	MW18S1 (06/18/15)	38/64	0.5 - 5	670	--	C	NVOC
	<b>Semi-Volatile Organic Compounds</b>												
4901-51-3	2,3,4,5-Tetrachlorophenol	5.1		186	J	µg/L	MW113S3 (05/18/11)	13/66	5 - 50	186	--		NVOC
58-90-2	2,3,4,6-Tetrachlorophenol	5.1		697		µg/L	CPT-9-S2S3 (05/10/12)	22/66	5 - 15	697	--	N	NVOC
95-95-4	2,4,5-Trichlorophenol	ND		ND		µg/L	--	0/62	5 - 50	ND	--	N	ND
88-06-2	2,4,6-Trichlorophenol	6.1		881		µg/L	CPT-4-S2S3 (05/08/12)	29/66	5 - 15	881	--	N	NVOC
120-83-2	2,4-Dichlorophenol	5.5		733		µg/L	CPT-4-S2S3 (05/08/12)	22/65	5 - 15	733	--	N	NVOC
583-78-8	2,5-Dichlorophenol	ND		ND		µg/L	--	0/62	5 - 50	ND	--		ND
87-65-0	2,6-Dichlorophenol	5.2		234		µg/L	CPT-4-S2S3 (05/08/12)	14/62	5 - 50	234	--		NVOC
95-57-8	2-Chlorophenol	6.3		56		µg/L	CPT-9-S2S3 (05/10/12)	12/62	5 - 15	56	--	N	X AD
--	3/4-Chlorophenol	5.7	J	77.2		µg/L	CPT-9-S2S3 (05/10/12)	6/62	5 - 50	77.2	--		X AD
319-84-6	alpha-BHC	0.013		26.8		µg/L	CPT-9-S2S3 (05/10/12)	39/69	0.011 - 55	26.8	--	C	NVOC
319-85-7	beta-BHC	0.143		37.5		µg/L	MW19S2 (06/18/15)	44/69	0.37 - 190	37.5	--	C	NVOC
608-73-1	delta-BHC	0.06		16		µg/L	CPT-9-S2S3 (05/10/12)	6/69	0.05 - 300	16	--	C	NVOC
58-89-9	gamma-BHC (lindane)	0.092		9.43		µg/L	CPT-9-S2S3 (05/10/12)	6/69	0.052 - 260	9.43	--	C	NVOC
118-74-1	Hexachlorobenzene	0.13	J	607		µg/L	MW19S2 (05/21/14)	11/69	0.1 - 500	607	0.9	C	X ASC
87-68-3	Hexachlorobutadiene	0.1		17800		µg/L	MW27S2 (05/23/13)	58/69	0.02 - 4	17800	2.7	C	X ASC
67-72-1	Hexachloroethane	0.02		2200		µg/L	MW27S2 (05/23/13)	60/69	0.02 - 0.4	2200	15	C	X ASC
	<b>Volatile Organic Compounds</b>												
71-55-6	1,1,1-Trichloroethane	1		4400		µg/L	CPT-4-S2S3 (05/08/12)	16/74	0.5 - 5000	4400	4800	N	BSC
107-06-2	1,2-Dichloroethane	0.5		21000		µg/L	CPT-9-S2S3 (05/10/12)	16/74	0.5 - 2000	21000	16	C	X ASC
78-87-5	1,2-Dichloropropane	1		36000		µg/L	CPT-9-S2S3 (05/10/12)	13/74	0.5 - 2000	36000	17	C	X ASC
71-43-2	Benzene	2		200		µg/L	CPT-9-S2S3 (05/10/12)	6/74	0.5 - 5000	200	11	C	X ASC
56-23-5	Carbon tetrachloride	0.7		160000		µg/L	MW18S1 (05/21/14)	64/74	0.5 - 500	160000	2.8	C	X ASC
67-66-3	Chloroform (Trichloromethane)	0.9		113000		µg/L	CPT-9-S2S3 (05/10/12)	70/74	0.5	113000	5.4	C	X ASC
74-87-3	Chloromethane (Methyl chloride)	0.6		0.6		µg/L	IW29 (05/16/13)	1/74	0.5 - 5000	0.6	140	N	BSC
75-09-2	Methylene chloride	2.8		24000		µg/L	CPT-9-S2S3 (05/10/12)	22/74	0.5 - 2800	24000	2900	N	X ASC
127-18-4	Tetrachloroethene	1		46000		µg/L	CPT-9-S2S3 (05/10/12)	73/74	0.5	46000	41	N	X ASC
79-01-6	Trichloroethene	0.9		9000		µg/L	CPT-9-S2S3 (05/10/12)	48/74	0.5 - 2000	9000	3.5	N	X ASC
75-01-4	Vinyl chloride	1		2.5		µg/L	IW29 (05/16/13)	2/74	0.5 - 5000	2.5	3.2	C	BSC

Table 4

**Occurrence, Distribution, and Selection of Chemicals of Potential Concern (COPCs) in Groundwater**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration (1)	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency (2)	Range of Detection Limits (2)	Concentration Used for Screening (3)	Screening Toxicity Value (4)	COPC Flag	Rationale for Contaminant Deletion or Selection (5)
--	General Chemistry Chloride	127000		10100000		µg/L	MW113S3 (05/18/11)	64/64	--	10100000	--		NAT

Notes:

C Carcinogenic; analyte considered to be a carcinogen.

NC Non-Carcinogenic; analyte considered to be a non-carcinogen.

-- Not Available

J Result is an estimated value.

(1) Minimum/maximum detected concentration.

(2) Based on data collected from sampling locations: CPT-6-S2S3, CPT-7-S1, CPT-7-S2S3, CPT-8-S1, CPT-8-S2S3, IW29, IW35A, IW35B, MW113S3, MW114S1, CPT-1-S1, CPT-2-S1, CPT-3-S1, CPT-3-S2S3, CPT-4-S1, CPT-4-S2S3, CPT-9-S1, CPT-9-S2S3, MW18S1, MW18S3, MW19S1, MW19S2, MW19S4, MW27S1, MW27S2.

(3) Maximum concentration used to screen against screening toxicity value.

(4) OSWER Vapor Intrusion Assessment, Vapor Intrusion Screening Level (VISL) Calculator Version 3.4, November 2015 RSLs.  
Commercial Land Use, TCR = 1E-06, THQ = 0.1, Average groundwater temperature = 15.5°C.

(5) Rationale Codes

Selection Reason : Maximum detected above Screening Criterion (ASC)  
Analyte Detected (AD)

Deletion Reason : Maximum detected below Screening Criterion (BSC)  
Analyte Not considered a Volatile Organic Compound (NVOC)  
Not Detected (ND)  
Naturally Occurring (NAT)

Table 5

**Occurrence, Distribution, and Selection of Chemicals of Potential Concern (COPCs) in Surface and Subsurface Soil**  
**Landfill Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Scenario Timeframe: Current/Future  
Medium: Soil (0-10 ftbgs)  
Exposure Medium: Soil

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration (1)	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency (2)	Range of Detection Limits (2)	COPC Flag	Rationale for Contaminant Deletion or Selection (3)
	<b>Herbicides</b>										
94-75-7	2,4-Dichlorophenoxyacetic Acid (2,4-D)	0.04		6.8		mg/kg	BP-8; 11-12 ftbgs (04/27/10)	6/51	6.8		NVOC
87-86-5	Pentachlorophenol	0.04		160		mg/kg	P6S; 6-7 ftbgs (04/19/10)	7/51	160		NVOC
	<b>Semi-Volatile Organic Compounds</b>										
4901-51-3	2,3,4,5-Tetrachlorophenol	ND		ND		mg/kg	--	0/51	ND		ND
58-90-2	2,3,4,6-Tetrachlorophenol	ND		ND		mg/kg	--	0/51	ND		ND
95-95-4	2,4,5-Trichlorophenol	ND		ND		mg/kg	--	0/51	ND		ND
88-06-2	2,4,6-Trichlorophenol	1		38		mg/kg	BP-8; 11-12 ftbgs (04/27/10)	2/51	38		NVOC
120-83-2	2,4-Dichlorophenol	0.9		11		mg/kg	BP-8; 11-12 ftbgs (04/27/10)	2/51	11		NVOC
583-78-8	2,5-Dichlorophenol	ND		ND		mg/kg	--	0/51	ND		ND
87-65-0	2,6-Dichlorophenol	ND		ND		mg/kg	--	0/51	ND		ND
95-57-8	2-Chlorophenol	ND		ND		mg/kg	--	0/51	ND		ND
--	3,4-Chlorophenol	ND		ND		mg/kg	--	0/51	ND		ND
319-84-6	alpha-BHC	0.05		1300		mg/kg	P6S; 6-7 ftbgs (04/19/10)	13/51	1300		NVOC
319-85-7	beta-BHC	0.03		200		mg/kg	P5SA; 1-2 ftbgs (07/19/10)	33/51	200		NVOC
608-73-1	delta-BHC	0.09		0.7		mg/kg	P5S; 9-10 ftbgs (07/19/10)	2/51	0.7		NVOC
58-89-9	gamma-BHC (lindane)	0.03		0.03		mg/kg	P5SB; 0.5-1 ftbgs (01/11/12)	1/51	0.03		NVOC
118-74-1	Hexachlorobenzene	0.03		2700		mg/kg	P6S; 6-7 ftbgs (04/19/10)	19/51	2700	X	VOC
87-68-3	Hexachlorobutadiene	0.17		5600	J	mg/kg	HX-3; 9-10 ftbgs (04/26/10)	6/51	5600	X	VOC
67-72-1	Hexachloroethane	0.03		2000	J	mg/kg	HX-3; 9-10 ftbgs (04/26/10)	3/51	2000	X	VOC
	<b>Volatile Organic Compounds</b>										
71-55-6	1,1,1-Trichloroethane	ND		ND		mg/kg	--	0/51	ND		ND
107-06-2	1,2-Dichloroethane	ND		ND		mg/kg	--	0/51	ND		ND
78-87-5	1,2-Dichloropropane	ND		ND		mg/kg	--	0/51	ND		ND
71-43-2	Benzene	0.01		28.9		mg/kg	AC-6; 19-20 ftbgs (04/28/10)	8/51	28.9	X	VOC
56-23-5	Carbon tetrachloride	0.0069		30		mg/kg	HX-3; 9-10 ftbgs (04/26/10)	14/51	30	X	VOC
67-66-3	Chloroform (Trichloromethane)	0.0045		10		mg/kg	P6S; 6-7 ftbgs (04/22/10)	20/51	10	X	VOC
74-87-3	Chloromethane (Methyl chloride)	ND		ND		mg/kg	--	0/51	ND		ND
75-09-2	Methylene chloride	0.02		81		mg/kg	HX-3; 9-10 ftbgs (04/26/10)	12/51	81	X	VOC
127-18-4	Tetrachloroethene	0.0066		1270		mg/kg	P7S; 7-10 ftbgs (04/22/10)	32/51	1270	X	VOC
79-01-6	Trichloroethene	0.0064		51		mg/kg	P6S; 6-7 ftbgs (04/22/10)	8/51	51	X	VOC
75-01-4	Vinyl chloride	ND		ND		mg/kg	--	0/51	ND		ND

Table 5

**Occurrence, Distribution, and Selection of Chemicals of Potential Concern (COPCs) in Surface and Subsurface Soil**  
**Landfill Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Scenario Timeframe: Current/Future  
Medium: Soil (0-10 ftbgs)  
Exposure Medium: Soil

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration (1)	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency (2)	Range of Detection Limits (2)	COPC Flag	Rationale for Contaminant Deletion or Selection (3)
--	<b>General Chemistry</b> Chloride	14		7590		mg/kg	P12E; 4-5 ftbgs (04/20/10)	37/51	7590		NAT

## Notes:

C Carcinogenic; analyte considered to be a carcinogen.

NC Non-Carcinogenic; analyte considered to be a non-carcinogen.

-- Not Available

J Result is an estimated value.

(1) Minimum/maximum detected concentration.

(2) Based on data collected from sampling locations: AC-5, AC-6, BP-8, BP-11, HX-3, HX-11, P1S, P1SA, P1SB, P2S, P2SA, P3S, P3SA, P3SB, P4S, P4SA, P4SB, P5S, P5SA, P5SB, P6S, P6SA, P6SB, P7S, P7SA, P7SB, P8EA, P8SA, P8SB, P8SE, P8SEB, P9E, P10E, P10EA, P11E, P11EA, P12E, P12EA, P13E, P14NE, P15N, P16W, P18W, P19W, P20W, P21W, P22W, SB-1, SB-2.

(3) Rationale Codes

Selection Reason : Analyte considered a Volatile Organic Compound (VOC)<sup>(4)</sup>

Deletion Reason : Analyte Not considered a Volatile Organic Compound (NVOC)

Not Detected (ND)

Naturally Occurring (NAT)

(4) OSWER Vapor Intrusion Assessment, Vapor Intrusion Screening Level (VISL) Calculator Version 3.4, June 2015 RSLs and updates.

The following rule from VISL was used to determine a chemical's volatility: vapor pressure greater than 1 mm Hg or Henry's law constant is greater than 0.00001 atm-m³/mole.

Table 6

**Occurrence, Distribution, and Selection of Chemicals of Potential Concern (COPCs) in Groundwater**  
**Landfill Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration (1)	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency (2)	Range of Detection Limits (2)	Concentration Used for Screening (3)	Screening Toxicity Value (4)	COPC Flag	Rationale for Contaminant Deletion or Selection (5)
	<b>Herbicides</b>												
94-75-7	2,4-Dichlorophenoxyacetic Acid (2,4-D)	1		840		µg/L	IW31 (05/18/11)	35/66	1 - 3	840	--	N	NVOC
87-86-5	Pentachlorophenol	0.6		300		µg/L	IW31 (05/18/11)	30/66	0.5 - 0.6	300	--	C	NVOC
	<b>Semi-Volatile Organic Compounds</b>												
4901-51-3	2,3,4,5-Tetrachlorophenol	8.1		149		µg/L	IW30 (05/17/13)	18/66	5 - 5.9	149	--		NVOC
58-90-2	2,3,4,6-Tetrachlorophenol	8.1		168		µg/L	IW30 (05/22/14)	23/66	5 - 5.9	168	--	N	NVOC
95-95-4	2,4,5-Trichlorophenol	ND		ND		µg/L	--	0/66	5 - 25	ND	--	N	ND
88-06-2	2,4,6-Trichlorophenol	6.6		261		µg/L	IW30 (05/18/11)	36/66	5 - 5.9	261	--	N	NVOC
120-83-2	2,4-Dichlorophenol	6.7		646		µg/L	MW12S1A (11/06/12)	39/66	5 - 5.9	646	--	N	NVOC
583-78-8	2,5-Dichlorophenol	ND		ND		µg/L	--	0/66	5 - 25	ND	--		ND
87-65-0	2,6-Dichlorophenol	5.8		205		µg/L	IW31 (05/18/11)	40/66	5 - 5.9	205	--		NVOC
95-57-8	2-Chlorophenol	5.1		51.2		µg/L	MW12S1A (11/06/12)	18/66	5 - 25	51.2	--	N	X AD
--	3/4-Chlorophenol	5.6		39		µg/L	IW31 (05/18/11)	26/66	5 - 10	39	--		X AD
319-84-6	alpha-BHC	0.012		30		µg/L	IW31 (05/17/12)	53/66	0.011 - 5.5	30	--	C	NVOC
319-85-7	beta-BHC	0.191		48.8		µg/L	MW12S3 (05/22/12)	52/66	0.037 - 19	48.8	--	C	NVOC
608-73-1	delta-BHC	0.06		45		µg/L	IW31 (05/17/13)	22/66	0.05 - 30	45	--	C	NVOC
58-89-9	gamma-BHC (lindane)	0.522		48.4		µg/L	IW31 (05/17/13)	18/66	0.052 - 26	48.4	--	C	NVOC
118-74-1	Hexachlorobenzene	0.18	J	5.2		µg/L	IW30 (06/19/15)	3/66	0.1 - 50	5.2	0.9	C	X ASC
87-68-3	Hexachlorobutadiene	0.41		875		µg/L	IW30 (05/22/14)	34/66	0.02 - 708	875	2.7	C	X ASC
67-72-1	Hexachloroethane	0.2		1240		µg/L	IW30 (05/18/11)	33/66	0.02 - 1070	1240	15	C	X ASC
	<b>Volatile Organic Compounds</b>												
71-55-6	1,1,1-Trichloroethane	2		110		µg/L	IW30 (05/17/12)	7/66	0.5 - 500	110	4800	N	BSC
107-06-2	1,2-Dichloroethane	39		2600		µg/L	IW30 (05/22/14)	30/66	0.5 - 500	2600	16	C	X ASC
78-87-5	1,2-Dichloropropane	80		3400		µg/L	IW30 (05/22/14)	14/66	0.5 - 500	3400	17	C	X ASC
71-43-2	Benzene	4		1260		µg/L	IW31 (05/17/13)	24/66	0.5 - 500	1260	11	C	X ASC
56-23-5	Carbon tetrachloride	2.2		22000		µg/L	IW30 (05/17/13)	51/66	0.5 - 50	22000	2.8	C	X ASC
67-66-3	Chloroform (Trichloromethane)	0.9		38500		µg/L	IW30 (05/18/11)	55/66	2 - 100	38500	5.4	C	X ASC
74-87-3	Chloromethane (Methyl chloride)	ND		ND		µg/L	--	0/66	0.5 - 500	ND	140	N	ND
75-09-2	Methylene chloride	41		4900		µg/L	IW30 (05/18/11)	20/66	0.5 - 500	4900	2900	N	X ASC
127-18-4	Tetrachloroethene	0.6		14700		µg/L	IW30 (05/22/14)	56/66	0.5 - 50	14700	41	N	X ASC
79-01-6	Trichloroethene	0.5		1300		µg/L	IW30 (05/19/10)	33/66	0.5 - 500	1300	3.5	N	X ASC
75-01-4	Vinyl chloride	ND		ND		µg/L	--	0/66	0.5 - 500	ND	3.2	C	ND

Table 6

**Occurrence, Distribution, and Selection of Chemicals of Potential Concern (COPCs) in Groundwater**  
**Landfill Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Scenario Timeframe: Current/Future  
Medium: Groundwater  
Exposure Medium: Groundwater

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration (1)	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency (2)	Range of Detection Limits (2)	Concentration Used for Screening (3)	Screening Toxicity Value (4)	COPC Flag	Rationale for Contaminant Deletion or Selection (5)
--	General Chemistry Chloride	69000		8600000	J	µg/L	MW29S2 (05/17/11)	66/66	--	8600000	--		NAT

Notes:

C Carcinogenic; analyte considered to be a carcinogen.

NC Non-Carcinogenic; analyte considered to be a non-carcinogen.

-- Not Available

(1) Minimum/maximum detected concentration.

(2) Based on data collected from sampling locations: IW30, IW31, IW32, IW36, MW02S1, MW02S2, MW02S3, MW12S1A, MW12S3, MW29S1, MW29S2, MW29S3.

(3) Maximum concentration used to screen against screening toxicity value.

(4) OSWER Vapor Intrusion Assessment, Vapor Intrusion Screening Level (VISL) Calculator Version 3.4, November 2015 RSLs.

Commercial Land Use, TCR = 1E-06, THQ = 0.1, Average groundwater temperature = 15.5°C.

(5) Rationale Codes

Selection Reason : Maximum detected above Screening Criterion (ASC)

Analyte Detected (AD)

Deletion Reason : Maximum detected below Screening Criterion (BSC)

Analyte Not considered a Volatile Organic Compound (NVOC)

Not Detected (ND)

Naturally Occurring (NAT)

Table 7

**Summary of Facility Structures and Determination of Vapor Intrusion Evaluation**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Area <sup>(1)</sup>	Structure Number <sup>(2)</sup> and Structure Description	Occupied <sup>(3)</sup>	Occupancy Load (mhrs/wk)	Individual Occupancy	Peak Occupancy (# of people)	Building Characteristics	Ventilation <sup>(4)</sup>	Evaluate <sup>(5)</sup>
NP	1 Southern Star Natural Gas Yard	No	1	1	2	shelter	--	No
NP	2 Sanitary Sewer Disposal Building Prestressed Concrete. North of Chloromethanes	No	1	1	2	shelter	--	No
P	3 North Area Maintenance Shop Metal frame, corrugated siding, North area emergency assembly area Office, breakroom, and bathroom North of #7 Cooling Tower	Yes	60	10	15	slab on grade, corrugated metal, garage doors/office shack	Yes	Yes
P	4 North Area Storage #1 Metal frame, corrugated siding (parts, supply storage) North of #7 Cooling Tower	No	2	1	2	metal shed, slab on grade, corrugated metal	No	No
P	5 North Area Storage #2 Metal frame, corrugated siding (parts, supply storage) North of #7 Cooling Tower	No	2	1	2	metal shed, slab on grade, corrugated metal	No	No
P	6 Cooling Tower 7B Building (firewater deluge valve freeze protection) East of Chloromethanes	No	1	1	2	slab on grade, metal siding	No	No
P	7 Cooling Tower 7A Building Fiberglass (chemical treatment pumps and instrumentation) East of Chloromethanes	No	3	1	2	fiberglass shed, elevated slab	No	No
P	8 MCC 32F / 47A Concrete Block, fiberglass roof (MCC) East of Chloromethanes	No	1	1	2	elevated slab, cinder block and fiberglass	No	No
P	9 CLM II Analyzer Building Fiberglass (instrumentation) West end of Chloromethanes	No	2	1	2	fiberglass shed elevated 20 feet off ground in CLM rack	Yes	No
P	10 CLM II Control Room Concrete block Offices, breakroom, and bathroom West end of Chloromethanes	Yes	168	5	10	elevated slab, cinder block, windows	Yes	Yes
P	11 MCC 30 Metal (MCC) West end of Chloromethanes	No	1	1	2	elevated slab, corrugated metal, open on N side	No	No
P	12 CLM II Shelter Building Metal frame, corrugated metal siding (Abandoned refrigeration compressor shelter) West end of Chloromethanes	No	1	1	2	abandoned corrugated metal shelter	--	No
P	13 C-501A Shelter Building Metal frame, corrugated fiberglass siding (partial enclosure - protect compressor) West end of Chloromethanes	No	2	1	5 (maint)	shelter, corrugated fiberglass	--	No
P	14 Chlorine Building - Control Lab Concrete Block (Utility Department's pump and additive chemicals - protected to prevent water and chemicals from freezing - unmanned) East of the Control Laboratory	No	2	1	2	cinder block structure	--	No
NP	15 Control Lab Concrete slab Offices / Labs / Bathroom West of Chloromethanes	Yes	168	10	20	Slab on grade building	Yes	No - Previously Completed
P	16 Deluge Valve House (at ST-660 & ST-661) (protect deluge valve from freezing) Southeast of #7 Cooling Tower	No	1	1	2	shelter	--	No
P	17 MCC 32E Concrete Block (MCC) Southeast of #7 Cooling Tower	No	1	1	2	elevated slab, cinder block	Yes	No
NP	18 R & D Storage Metal frame, corrugated metal siding. (Parts, supply storage) North of R&D Pilot Plant	No	1	1	2	shed, corrugated metal	--	No
NP	19 R & D Shop (compressor building) Metal frame, corrugated metal siding. (shelter compressor) North of R&D Pilot Plant	No	1	1	3	shop, corrugated metal	--	No

Table 7

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**Wichita, Kansas**

Area <sup>(1)</sup>	Structure Number <sup>(2)</sup> and Structure Description		Occupied <sup>(3)</sup>	Occupancy Load (mhrs/wk)	Individual Occupancy	Peak Occupancy (# of people)	Building Characteristics	Ventilation <sup>(4)</sup>	Evaluate <sup>(5)</sup>
NP	20	R & D Offices and Pilot Plant Offices and bathrooms. Basement meeting room (30-40 people) Tornado emergency gathering area. Concrete block & brick (offices, laboratories, meeting rooms)	Yes	168	25	60 meeting 120 tornado	concrete block & brick building with basement	Yes	No - Previously Completed
NP	21	R & D Chemical Storage Concrete block construction (chemical storage) Center of R&D buildings	No	6	1	3	slab on grade, cinder block, windows	Yes	No
P	22	R & D Drum Storage Metal frame, corrugated metal roof. (partial enclosure) East of R&D	No	7	2	3	shelter, corrugated metal	--	No
P	23	R & D Maintenance Shop Concrete block. Office & Bathroom Northeast of R&D	No	1	1	3	slab on grade, cinder block, garage doors/windows	Yes	No
P	24	Perc Storage Covered Area Metal frame, corrugated metal siding (chemical, filter fill, refrigerant cylinder storage) North of VCRU	No	1	1	2	shelter, corrugated metal	--	No
P	26	VFS Control Room Concrete block (office, control room, bathroom - abandoned and locked) North of VCRU	No	1	1	2	abandoned cinder block structure	--	No
P	30	VFS Maintenance Shop Concrete block (north end abandoned laboratory) (north end storage for equipment for the confined space entry team) Northeast of VCRL	No	1	1	4	cinder block structure	--	No
P	31	Drum Filling Warehouse Concrete panel construction (offices, portable bathroom) South of RR tracks south of Cooling Tower #7	Yes	40	2	4	elevated slab, concrete panel, garage doors	Yes	Yes
P	32	MCC Concrete block (MCC) Southeast of Drum Fill Warehouse (#31)	No	1	1	2	cinder block structure	--	No
P	35	Deep Well Sampling Building Concrete block (analyzers, meters, chemical storage) East of Drum Fill Warehouse (#31)	No	1	1	2	cinder block structure	--	No
P	36	Deep Disposal Facility Metal frame, resolute siding and roof (pumps, process equipment, unmanned) East of Drum Fill Warehouse (#31)	No	2	1	2	shelter, resolute siding and roof	--	No
P	38	Disposal Data Acquisition Center Fiberglass (Desk, computer) (The only reason to use this computer is if the computers in the boiler house control room are down) Northeast of Tank Area Offices (#45)	No	4	1	2	fiberglass structure	--	No
P	40	Flammable Drum Storage Metal frame, resolute roof (partial enclosure - drum storage) Northeast of Tank Area Offices (#45)	No	1	1	2	shelter, resolute	--	No
P	41	90-Day Storage Facility Metal frame, corrugated fiberglass siding (MCC, waste storage) Northeast of Tank Area Offices (#45)	No	1	1	2	fiberglass siding on metal structure	--	No
P	42 & E1	Insulation / Scaffold Storage Metal frame, corrugated metal siding East of Tank Area Offices (#145)	No	1	2	2	shed, corrugated metal	--	No
P	43	Drum Smasher Building Concrete block (drum smasher, used on occasion by a contractor) East of Tank Area Offices (#45)	No	1	1	2	cinder block structure	--	No

Table 7

**Summary of Facility Structures and Determination of Vapor Intrusion Evaluation**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Area <sup>(1)</sup>	Structure Number <sup>(2)</sup> and Structure Description	Occupied <sup>(3)</sup>	Occupancy Load (mhrs/wk)	Individual Occupancy	Peak Occupancy (# of people)	Building Characteristics	Ventilation <sup>(4)</sup>	Evaluate <sup>(5)</sup>
P	45 Tank Area Office Concrete block Offices and Bathroom On East Street, North of Acid Load Tracks	Yes	168	5	10	slab on grade, cinder block, windows	Yes	Yes
P	47 New MCC 2E Concrete block Northwest of Tank Area Offices (#45)	No	1	1	2	cinder block structure	--	No
P	48 Old MCC 2B - Fire System Concrete block (MCC) Northwest Tank Area Offices (#45)	No	1	1	2	cinder block structure	--	No
P	49 CLM 1 Storage Concrete block (hoses, parts and chemical storage) East of VCRU Control Room (#51)	No	1	1	2	cinder block structure	--	No
P	51 VCRU Control Room Office and Bathroom Concrete block On south side of Main E-W Road East of R&D	Yes	40	1	5	elevated on S side, to grade on N side, concrete panel, windows	Yes	Yes
P	52 Maintenance Storage Building (CLM1) Metal frame, fiberglass siding South of VCRU Control Room (#51)	No	1	1	2	storage, fiberglass	--	No
P	53 Mobile Foam Unit Building Concrete block (Safety supply and foam trailer storage) West of VCRU Control Room (#51)	No	1	1	4	cinder block structure	--	No
P	54 Capital Maintenance Building Metal frame, corrugated metal siding (Office, break room, maintenance shop) North of Maintenance Building (#56)	Yes	60	10	18	elevated slab, corrugated metal, garage doors	Yes	Yes
P	55 CLM 1 Gas Booster Building Concrete block (insulation storage) Northeast of Maintenance Building (#56)	No	1	1	2	cinder block structure	--	No
P	56 Maintenance Building Video Conference Room (20 people) Training Room (30 people) Prestressed Concrete Panels	Yes	168	20	40	slab on grade, concrete panel, garage doors	Yes	Yes
NP	57 Admin / Cafeteria / Credit Union Offices and Bathrooms Executive Conference Room (12 people) Tornado Emergency Gathering Area Concrete, concrete, block, brick	Yes	168	45	50 meeting 100 tornado	elevated slab, brick	--	No - Previously Completed
P	58 Warehouse / PCS Group Offices Offices and Bathroom Annex Conference Room (50 people) Concrete slab	Yes	168	40	60	elevated slab, concrete panel, garage doors	Yes	Yes
P	60 Penta Laundry Facility/NMCC Concrete block (portable water bottle storage, marshaling, cabinet, and MCC) East of Maintenance Building (#56)	No	1	1	2	slab on grade, cinder block, windows	Yes	No
P	61 Switch Crew Office Concrete block (office, computer, radio recharging) East of Maintenance Building (#56)	No	12	2	4	slab on grade, cinder block, side door	Yes	No
P	66 Relief Valve Storage Wood (relief device storage) East of Warehouse (#58)	No	1	1	2	shed, wood	--	No
P	67 Relief Valve Shop Metal frame, corrugated metal siding (Office, maintenance shop) East of Warehouse (#58)	Yes	30	1	2	elevated slab, aluminum, garage doors	Yes	Yes
P	68 Paging Transmitter Building Fiberglass (Electrical equipment) Southwest of Tank Area Office (#45)	No	1	1	2	shed, fiberglass	--	No
P	70 Old Main Street Loading Building Fiberglass (parts storage - old abandoned load shack) South of Tank Area Office (#45)	No	1	1	2	shed, fiberglass	--	No
P	70A Main Street Trailer Load Building Fiberglass (office, computer, load meter readouts) South of Tank Area Office (#45)	Yes	84	1	3	elevated slab, prefab building, fiberglass, windows	No	Yes

Table 7

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Area <sup>(1)</sup>	Structure Number <sup>(2)</sup> and Structure Description	Occupied <sup>(3)</sup>	Occupancy Load (mhrs/wk)	Individual Occupancy	Peak Occupancy (# of people)	Building Characteristics	Ventilation <sup>(4)</sup>	Evaluate <sup>(5)</sup>
P	71 Acid Loading Control Building Fiberglass (on 2nd deck of load rack) South of Tank Area Office (#45)	No	7	20	2	shack suspended on rack structure, fiberglass	--	No
P	72 PDC08 Concrete block (power distribution center) Southwest of Cooling Tower #3	No	1	1	2	cinder block structure	--	No
P	73 MCC 4A / 4D Concrete (MCC) West of Cooling Tower #3	No	1	1	2	cinder block structure	--	No
P	74 #3 Cooling Tower Deluge Valve Concrete block (freeze protection for deluge valve) West of Cooling Tower #3	No	1	1	2	cinder block structure	--	No
P	75 MCC 4C Concrete block (MCC) Southwest of Cooling Tower #3	No	1	1	2	cinder block structure	--	No
P	78 South Evaporator Building Metal frame, transite siding (noisy place, process pumps and motors) South of Caustic Control Room (#80)	No	15	1	4	slab on grade/multistory, transite on metal frame, open sides	No	No
P	79 North Evaporator Building Metal frame, concrete (noisy place, process pumps and motors) East of Caustic Control Room (#80)	No	15	1	4	elevated slab, metal/concrete panel, open sides	No	No
P	80 Caustic Control Room Concrete block (office, computers, break area, bathroom)	Yes	168	3	8	elevated slab, cinder block, windows	Yes	Yes
P	81 TS-11 Concrete block (transformer station) North of Caustic Control Room (#80)	No	1	1	2	elevated slab, cinder block	--	No
P	82 Baker-Perkins Centrifuge Metal frame, corrugated fiberglass siding (noisy, process equipment) Southwest of Caustic Control Room (#80)	No	7	1	5	slab on grade, fiberglass siding, garage doors	No	No
P	84 TS-6 Concrete block (transformer station) East of H3 Cell Room (#86)	No	1	1	2	elevated slab, cinder block	--	No
P	85 H-3 Control Room Concrete block (desk, computer, bathroom) East of 113 Cell Room (#86)	Yes	168	1	5	elevated slab, cinder block, windows	Yes	Yes
P	86 H-3 Cell Room Concrete slab walls / metal frame corrugated fiberglass roofing (high voltage process equipment similar to outside process area)	Yes	60	2	10	slab on grade, concrete slab/fiberglass siding, garage doors, only three walls	Yes	No
P	87 H-3 Air Conditioning Room Concrete block (EVS/neutralizer PLC control panel) West of H3 Cell Room (#86)	No	2	1	5	slab on grade, cinder block	Yes	No
P	88 Hydrogen Analyzer Building Concrete block (113/114 laboratory, MCC, parts and hose storage) West of H3 Cell Room (#86)	Yes	8 to 20	1	3	cinder block structure	--	Yes
P	90 Diesel Generator Fiberglass (process equipment) Northeast of H-4 Control Room (#91)	No	1	1	2	elevated slab, fiberglass siding, door	No	No
P	91 H-4 Control Room Concrete block (Office, computer, laboratory, break area, bathroom)	Yes	168	1	5	slab on grade, cinder block, garage doors	Yes	Yes
P	92 H-4 Electrical Room Concrete block (high voltage process control equipment) West of the H-4 Control Room (#91)	No	2	1	5	slab on grade, cinder block	Yes	No
P	93 H-4 Cell Room Metal frame, corrugated transit siding (high voltage process equipment similar to outside process area)	Yes	60	2	15	slab on grade, corrugated metal and transite, windows, partially open on one end	Yes	No

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P	96 South Area Fire Protection Building Metal (safety supplies) East of Sodium Chlorite's Cooling Tower	No	1	1	4	slab on grade, metal siding	No	No
P	95 Guard House Brick (Office, computer) South of Admin Building (#57)	Yes	168	2	6	elevated slab, brick, windows	Yes	Yes
P	97 Refrigeration Building Metal frame, corrugated transite siding (noisy process equipment) Northwest of the C12 Control Rm (#130)	No	1	1	2	elevated slab, transite, multistory, garage doors	No	No
P	98 Chlorine Sniff Recovery Concrete block (noisy process equipment) Northwest of the C12 Control Rm (#130)	No	7	4	8	cinder block structure	--	No
P	99 Refrigeration Room (elevated above the alley way) (abandoned process equipment) Northwest of the C12 Control Rm (#130)	No	1	1	1	elevated structure used for storage	--	No
P	100 Chlorine Liquefaction Building Concrete, corrugated fiberglass roof (noisy process equipment) North of the C12 Control Rm (#130)	No	10	4	6	cinder block structure with corrugated fiberglass roof	--	No
P	101 TS-33 Metal (transformer station) East of H4 Cell Room (#93)	No	1	1	2	metal structure	--	No
P	102 Old TS-10 Concrete (transformer station) East of H3 Cell Room (#86)	No	1	1	2	cinder block structure	--	No
P	103 South Area Production Office (SAPO) Concrete Offices and Bathroom Conference Room (10 people)	Yes	280	70	25	slightly elevated, concrete panel, windows	Yes	Yes
P	104 Boilers #1 & #2 Concrete (noisy process equipment) East of SAPO (#103)	No	1	1	6	cinder block structure	--	No
P	105 Boiler Control Room Concrete Block Office / Break Area / Bathroom / Laboratory Northeast of SAPO (#103)	Yes	168	70	6	slightly elevated, cinder block, garage doors/windows	Yes	Yes
P	106 Processing Building Metal-frame, fiberglass siding (noisy or hot process equipment) North of Boiler Control Room (#105)	No	14	1	10	slab on grade, metal frame and fiberglass, garage doors	Yes	No
P	107 PDC-11 Concrete Block (power distribution center) Northeast of Boiler Control Room (#105)	No	1	1	2	cinder block structure	--	No
P	108 MCC-09C and MCC-09D Concrete Block (MCC) Northeast of Boiler Control Room (#105)	No	1	1	2	cinder block structure	--	No
P	109 Bead Caustic Warehouse Metal frame, corrugated metal siding (material storage, abandoned office and bathroom - locked) Northeast of Boiler Control Room (#105)	No	1	1	4	metal structure	--	No
P	111 TS-7 Concrete block (transformer station) Northwest of Brine Treat CR (#112)	No	1	1	2	cinder block structure	--	No
P	112 Brine Treat Control Room Concrete Block (office, computer, bathroom, laboratory)	No	14	10	3	slab on grade, cinder block, windows	Yes	No
P	113 Deluge Valve Building Concrete block (freeze protection for the deluge valve) Southwest of Brine Treat CR (#112)	No	1	1	2	cinder block structure	--	No

Table 7

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Area <sup>(1)</sup>	Structure Number <sup>(2)</sup> and Structure Description	Occupied <sup>(3)</sup>	Occupancy Load (mhrs/wk)	Individual Occupancy	Peak Occupancy (# of people)	Building Characteristics	Ventilation <sup>(4)</sup>	Evaluate <sup>(5)</sup>
P	114 Truck Scale Concrete block (empty oil drum storage) East of Brine Treat CR (#112)	No	1	1	2	cinder block structure	--	No
P	115 Rolling Stock Maintenance Metal frame, corrugated metal siding Office and maintenance shop East of Brine Treat CR (#112)	Yes	65	85	4	elevated slab, corrugated metal, garage doors	No	Yes
L	116 TS-29 Metal (transformer station) East Side of RR tracks, East of South Area Maintenance Shop (#120)	No	1	1	2	metal structure	--	No
P	117 Transportation Concrete block (offices, break area, bathroom, maintenance shop) East of South Area Maint Shop (#120)	Yes	40	90	8	slab on grade, cinder block, garage doors	No	Yes
P	118 Tank Car Repair Metal frame, corrugated metal siding (office, computer, maintenance shop) East of South Area Maint Shop (#120)	Yes	40	90	4	slab on grade, corrugated metal, garage doors	No	Yes
P	119 South Area Storage Shed Metal frame, corrugated fiberglass siding (manlift parking, maintenance material storage) East of South Area Maint Shop (#120)	No	1	1	2	shed, fiberglass	--	No
P	120 New South Area Maintenance Shop Concrete block (offices / emergency assembly area / bathroom)	Yes	40	30	14 50 emergency	elevated slab, cinder block, garage doors/windows	No	Yes
P	121 South Area Maint Break Areas Concrete block (break area, bathroom) West of South Area Maint Shop (#120)	Yes	10	10	14	elevated slab, cinder block, windows	Yes	No
P	124 South Area Maint Storage Concrete block West of South Area Maint Shop (#120)	No	1	1	2	cinder block structure	--	No
P	125 Diaphragm Cell Storage Metal frame, corrugated metal siding (rebuild cell and maintenance material storage) West of South Area Maint Shop (#120)	No	1	1	4	metal structure	--	No
P	126 TS-10 Concrete block (transformer station) Southeast of C12 Control Room (#130)	No	1	1	2	cinder block structure	--	No
P	127 Fire Water Deluge Valve (#4 cooling tower) Concrete block (freeze protection for the cooling tower) West of #4 Cooling Tower	No	1	1	2	cinder block structure	--	No
P	128 Cooling Tower #4 Chemical Treatment Fiberglass West of #4 Cooling Tower	No	1	1	2	fiberglass structure	--	No
P	129 Fire Water House Concrete block West of #4 Cooling Tower	No	1	1	2	cinder block structure	--	No
P	130 Chlorine Control Room Concrete block (office/bathroom)	Yes	168	5	10	slab on grade, cinder block, windows	Yes	Yes
P	131 Asbestos Dewatering Building Metal frame, corrugated fiberglass siding Southwest of Chlorine CR (#130)	No	1	1	4	fiberglass structure	--	No
P	132 Diaphragm Cell Repair Concrete slab (office, break room, showers, bathroom) West of Chlorine CR (#130)	Yes	60	25	15	elevated slab, concrete panel, windows	Yes	Yes

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P	133 Interceptor Well #29 Metal overhang, corrugated fiberglass siding (instrumentation and electrical equipment termination) North of Cogen (#134)	No	1	1	2	shelter, fiberglass	--	No
P	104 Cogeneration Building Concrete slab (office, control room, process equipment, the cogen is set up to be run from the boiler house, we do not keep an operator at the site even if we were to rarely run unit)	No	1	1	8	cinder block structure	--	No
P	135 Transformer Station Metal (transformer station) North of Cogen (#134)	No	1	1	2	metal structure	--	No
P	136 M-1 / Acid Plant Demineralizer Metal frame, corrugated metal siding (process equipment, heated to protect the process equipment, unmanned) West of M1 Control Room (#138)	No	7	1	4	metal structure	--	No
P	137 M-1 Storage Area Concrete (material and chemical storage with bridge crane) West of M1 Control Room (#138)	No	1	1	2	cinder block structure	--	No
P	138 M-1 Control Room Concrete block (office, bathroom, laboratory, control panels)	Yes	168	5	10	slab on grade, cinder block, windows	Yes	Yes
P	139 Internal Cooling Water Building Fiberglass (exchange, piping, heated to protect water from freezing, unmanned) Southwest of M1 Control Room (#138)	No	2	1	2	fiberglass structure	--	No
P	140 Rectifier Control Room Fiberglass (rectifier controls - marked for authorized personnel only) South of M1 Control Room (#138)	No	1	1	4	fiberglass structure	--	No
P	141 Rectifier Control Room Fiberglass (rectifier controls - marked for authorized personnel only) South of M1 Control Room (#138)	No	1	1	4	fiberglass structure	--	No
P	142 M-1 Cell Room Metal frame, corrugated transite siding (high voltage process equipment - similar to outside process area)	Yes	40	1	16	slab on grade, transite on metal frame, garage doors	No	No
P	143 MCC 37A Metal (MCC) East end of M1 Production Unit	No	1	1	2	metal structure	--	No
P	144 Analyzer Building Fiberglass (instrumentation) East end of M1 Production Unit	No	1	1	2	fiberglass structure	--	No
P	145 Brine IX-Bed Control Building Fiberglass (instrumentation termination, chair, computer screen, air conditioning to protect instrumentation, general unmanned) East end of M1 Production Unit	No	1	1	2	fiberglass structure	--	No
	146 No associated building							
P	147 Caustic Load Rack Building Fiberglass (materials, sample bottles, labels, load meters) South of Tank Area Office (#45)	Yes	21	1	2	shack suspended on rack structure 10 feet off ground, fiberglass	Yes	No
P	148 Scales Building Concrete block (material storage) East of South Area Maint (#120)	No	1	1	2	cinder block structure	--	No

Table 7

**Summary of Facility Structures and Determination of Vapor Intrusion Evaluation**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Area <sup>(1)</sup>	Structure Number <sup>(2)</sup> and Structure Description	Occupied <sup>(3)</sup>	Occupancy Load (mhrs/wk)	Individual Occupancy	Peak Occupancy (# of people)	Building Characteristics	Ventilation <sup>(4)</sup>	Evaluate <sup>(5)</sup>
P	149 Scales Building Concrete block (weight scale read out) East of South Area Maint (#120)	No	1	1	2	cinder block structure	--	No
P	152 HCl Remote Junction Building Fiberglass (instrument terminals) Southeast of C12 Control Room (#120)	No	1	1	2	fiberglass structure	--	No
NP	154 Transportation Building Concrete (offices, bathroom, break area) North of Chloromethanes	Yes	55	2	5	slab on grade, concrete panel, windows	Yes	Yes
P	88 C2 Metal frame, fiberglass siding (production equipment, noisy-similar to outside process area) East of the C2 Control Room (#157)	Yes	30	1	14	slab on grade, concrete panel, garage doors	Yes	Yes
P	157 C2 Control Room Concrete block (office, break area, bathroom, showers) On Ridge Road South of Admin Building (#147)	Yes	168	3	10	elevated slab, cinder block, windows	Yes	Yes
P	A Fire Building at #7 cooling tower Fiberglass (freeze protection for deluge valve) West of #7 Cooling Tower	No	1	1	2	fiberglass structure	--	No
P	B Addition to MCC 32 B & C Metal (MCC) East End of Chloromethane Product Unit	No	1	1	2	metal structure	--	No
P	C East Chloromethane Storage Shed Metal (parts, material storage) East End of Chloromethane Product Unit	No	1	1	1	shed, metal	--	No
P	D West Chloromethane Storage Shed Fiberglass (parts, material storage) East End of Chloromethane Product Unit	No	1	1	1	shed, fiberglass	--	No
P	E Chloromethane Fire Building Concrete block (freeze protection for deluge valve) South of CLM Control Room (#10)	No	1	1	2	cinder block structure	--	No
P	H Chlorine Load Scales Building Concrete block (weight scale read outs, chair, sample bombs, scale to weigh bombs) Southeast of South Area Maint (#120)	No	7	1	2	cinder block structure	--	No
NP	J North Natural Gas Pipeline Building Owned by the natural gas supplier Metal, corrugated siding and roof (natural gas regulators)	No	1	1	2	metal structure	--	No
NP	K South Natural Gas Pipeline Building Owned by the natural gas supplier Sheet metal building (natural gas meters) On Ridge Road N of Control Lab (#15)	No	1	1	2	metal structure	--	No
P	L North Area Maint. Supervisor Office Metal frame, vinyl siding (maintenance material storage) Northwest of #7 Cooling Tower	No	1	1	2	vinyl siding on metal structure	--	No
P	M MCC32C & D Metal (MCC) East end of CLM Production Unit	No	1	1	2	metal structure	--	No
NP	N Transportation Truck Port Steel-frame, metal roof (parking for transportation tractors) North of Chloromethanes	No	10	1	3	carport/awning, slab on grade, metal frame and roof, open	No	No
P	O #7 Cooling Tower Storage Shed Fiberglass (material storage) East of #7 Cooling Tower	No	1	1	2	shed, fiberglass	--	No
P	P CLMII Analyzer Building Fiberglass (instrumentation) East of CLM Control Room (#10)	No	2	1	2	fiberglass structure	--	No

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**Summary of Facility Structures and Determination of Vapor Intrusion Evaluation**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Area <sup>(1)</sup>	Structure Number <sup>(2)</sup> and Structure Description		Occupied <sup>(3)</sup>	Occupancy Load (mhrs/wk)	Individual Occupancy	Peak Occupancy (# of people)	Building Characteristics	Ventilation <sup>(4)</sup>	Evaluate <sup>(5)</sup>
P	Q	Vilter Compressor Building Metal frame, fiberglass siding (noisy, unmanned, process equipment) North of CLM Control Room (#10)	No	2	1	6	fiberglass structure	--	No
P	R	MCC 31 F Concrete block (MCC) West of CLM Control Room (#10)	No	1	1	2	cinder block structure	--	No
P	S	Analyzer Storage Building Fiberglass (parts, materials storage) East of Control Laboratory (#15)	No	1	1	2	fiberglass structure	--	No
P	T	C501 Compressor Lean To Metal frame, corrugated metal siding (noisy, unmanned process equipment) Southwest of CLM Control Room (#10)	No	2	1	5	metal structure	--	No
P	U	R&D Storage Building Wood (filters, parts, chemical storage) Northeast of R&D Pilot Plant (#20)	No	1	1	2	shed, wood	--	No
NP	V	R&D Cooling Tower Deluge Valve Concrete block (freeze protection for deluge valve) North of R&D Pilot Plant	No	1	1	2	cinder block structure	--	No
P	W	Firewater Deluge Valve Building Concrete block (freeze protection for the deluge valve) East of R&D Pilot Plant (#20)	No	1	1	2	cinder block structure	--	No
P	X	Firewater Deluge Valve Building Concrete block (freeze protection for deluge valve) Northwest of VCRU at railroad tracks	No	1	1	2	cinder block structure	--	No
P	Y	VFS Maintenance Storage Building Wood (insulation sheeting and strap storage) Northeast of VCRU	No	1	1	2	shed, wood	--	No
P	Z	TK437 Gas Chromatograph Building Fiberglass Building has been removed (instrumentation) Northeast of Tank Area Office (#45)	No	4	1	2	no longer present on site	--	No
P	A1	Roof over MCC32D Metal frame, corrugated transite roof (MCC) Southeast of CLM Control Room (#10)	No	1	1	2	metal structure	--	No
P	B1	Roof over MCC5C Metal frame, corrugated fiberglass roof (MCC)	No	1	1	2	fiberglass structure	--	No
P	C1	Motor Oil Storage Metal frame, corrugated fiberglass siding (55-gallon drums of used oil) At RR Tracks, Northeast of Lined Pond	No	1	1	2	fiberglass structure	--	No
P	D1	Rail Scale Building Concrete block (scale readout, printout machines, switch crew break area)	No	7	1	2	slab on grade, cinder block, windows	Yes	No
P	H1	Insulation Storage Building Metal frame, corrugated metal siding (table used to cut and prepare insulation) East of Tank Area Offices (#45)	No	1	1	2	no longer present	--	No
P	F1	Tank Area Storage Building	No	1	1	2	storage	--	No
P	G1	Solvent Tank Trailer Load Structure Raised 10 feet off ground Metal frame, corrugated transit roof (contains loader's shack, desk, computer, and scale read out)	Yes	28	1	4	outdoor loading rack with roof, corrugated metal and transite, open	No	No
P	H1	Fire System Deluge Valve Building Concrete block (freeze protection for the deluge valve)	No	1	1	2	cinder block structure	--	No
P	I1	Electrical Storage Building Fiberglass-Baker Storage Tank (material and parts storage)	No	1	1	2	fiberglass structure	--	No
P	J1	Radiation Storage Building Fiberglass (material and parts storage)	No	1	1	2	fiberglass structure	--	No

Table 7

**Summary of Facility Structures and Determination of Vapor Intrusion Evaluation**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Area <sup>(1)</sup>	Structure Number <sup>(2)</sup> and Structure Description		Occupied <sup>(3)</sup>	Occupancy Load (mhrs/wk)	Individual Occupancy	Peak Occupancy (# of people)	Building Characteristics	Ventilation <sup>(4)</sup>	Evaluate <sup>(5)</sup>
P	K1	Knox-Western Compressor Building Metal frame, fiberglass siding (noisy, unmanned, process equipment)	No	2	1	6	fiberglass structure	--	No
P	L1	MCC 03C Concrete block (MCC)	No	1	1	2	cinder block structure	--	No
P	M1	Caustic Filter Storage Building Fiberglass (caustic sock, filter storage) Southeast of Tank Area Office (#45)	No	1	1	2	fiberglass structure	--	No
P	N1	Calcium Chloride Building Metal frame, fiberglass siding (office, heat, bathroom, MCC, spare air compressor, process equipment) abandoned At the East End of Main Street	No	2	1	4	slab on grade, cinder block, metal frame w/ fiberglass siding, garage doors	Yes	No
P	O1	Storage Building Wood (material for maintaining monitor wells) East of Calcium Chloride (#N1)	No	1	1	2	shed, wood	--	No
P	P1	Rolling Stock Tire Maintenance Metal Frame, corrugated metal siding (tires) South of Calcium Chloride (#N1)	No	2	1	2	metal structure	--	No
P	Q1	Gas Pump Shelter Metal frame, fiberglass siding (gas pumps) South East of #3 Cooling Tower	No	2	1	2	fiberglass structure	--	No
P	R1	MCC 4B Fiberglass (MCC) Southeast of #3 Cooling Tower	No	1	1	2	fiberglass structure	--	No
P	S1	Old Brine Polish Filter Storage Fiberglass (chemicals and hose storage) Southeast of #3 Cooling Tower	No	1	1	2	fiberglass structure	--	No
P	T1	#3 Cooling Tower Chemical Treatment Fiberglass (treatment pumps and instrumentation) Southwest of Cooling Tower #3 East of #3 Cooling Tower	No	1	1	2	fiberglass structure	--	No
P	U1	MCC11C Covered Area Metal frame, asbestos roofing (MCC) Southwest of Cooling Tower #3	No	1	1	2	shelter, asbestos roofing	--	No
P	V1	Brine Treatment Analyzer Building Fiberglass (chemical and chemical addition pumps) Northwest Brine Treat CR (#112)	No	1	1	2	fiberglass structure	--	No
P	W1	PDC7 Building Concrete block (power distribution center) Northwest Brine Treat CR (#112)	No	1	1	2	cinder block structure	--	No
P	X1	Chemical Addition Building Fiberglass (analyzers and chemicals) Northeast of Brine Treat CR (#112)	No	1	1	2	fiberglass structure	--	No
P	Y1	No associated building							
P	Z1	IW35B Electrical Structure Metal frame, fiberglass roof (MCC) South of M1 Cell Room (#142)	No	1	1	2	shelter, fiberglass	--	No
NP	A2	North Fire Water Building Metal frame, metal siding (fire water pumps and piping, climate controlled to protect piping) Southeast of Solar Ponds	No	1	1	2	metal structure	--	No
NP	B2	MCC 1J Roofed Area Metal frame, corrugated fiberglass roof (MCC) Southeast of Solar Ponds	No	1	1	2	fiberglass structure	--	No
NP	C2	MCC49A Roofed Area at Deep Well 10 Metal frame, corrugated fiberglass roof (MCC) Southeast of Solar Ponds	No	1	1	2	fiberglass structure	--	No

Table 7

**Summary of Facility Structures and Determination of Vapor Intrusion Evaluation**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Area <sup>(1)</sup>	Structure Number <sup>(2)</sup> and Structure Description		Occupied <sup>(3)</sup>	Occupancy Load (mhrs/wk)	Individual Occupancy	Peak Occupancy (# of people)	Building Characteristics	Ventilation <sup>(4)</sup>	Evaluate <sup>(5)</sup>
NP	D2	Transportation Refueling/Wash Point Metal frame, corrugated fiberglass siding (Tractor refueling point) North of Chloromethanes	No	1	1	2	fiberglass structure	--	No
P	E2	North Area Maintenance Picnic Area Metal frame, metal roof (picnic table) Northwest of #7 Cooling Tower	No	1	1	6	shelter, metal	--	No
P	F2	MCC 28A Roofed Area Metal frame, corrugated transite roofing (MCC) West of the Bead Warehouse (#109)	No	1	1	2	shelter, corrugated transite	--	No
P	G2	#1 HCl Burner I/O Building Fiberglass (instrumentation termination, UPS, climate controlled for UPS, unmanned) West of #4 Cooling Tower	No	1	1	2	fiberglass structure	--	No
P	H2	M1 Caustic Plant Remote I/O Building Concrete block (instrumentation terminals) East end of M1 Production Unit	No	1	1	2	cinder block structure	--	No
P	I2	Chemical Treatment Building at C2 Cooler Tower Fiberglass (chemical treatment pumps and instrumentation) North of C2 Cooling Tower	No	1	1	2	fiberglass structure	--	No
P	J2	H4 DCS Remote Junction Building Concrete Block (instrumentation terminals) Northeast of H4 Control Room (#91)	No	1	1	2	cinder block structure	--	No
P	K2	M1 Safety Shower Chemical Addition Fiberglass Storage Container (water treatment chemicals and instrumentation, climate controlled to prevent freezing, too small to comfortable hold a person) East end of M1 Production Unit	No	1	1	1	shed, fiberglass	--	No
P	L2	C12 Plant Hydrogen Analyzer Building Fiberglass (instrumentation) East of H4 Cell Room (#93)	No	1	1	2	fiberglass structure	--	No
P	M2	Hydrogen Bisulfite Building Fiberglass (chemicals, instrumentation, heated to prevent chemicals from freezing, unmanned) East of H4 Cell Room (#93)	No	1	1	2	fiberglass structure	--	No
P	N2	MCC19B Roofed Area Metal frame with fiberglass roof (MCC) South of Cell Renewal (#132)	No	1	1	2	shelter, fiberglass	--	No
P	O2	C4 Chlorine Load Spot Roofed Area Metal frame with fiberglass roof (instrumentation and valves) East of South Area Maint (#120)	No	1	1	2	shelter, fiberglass	--	No
P	P2	C6 Chlorine Load Spot Roofed Area Metal frame with fiberglass roof (instrumentation and valves) Southeast of South Area Maint (#120)	No	1	1	2	shelter, fiberglass	--	No
P	Q2	MCC 42ABC Metal panel building (MCC) South of C2 Control Room (#157)	No	1	1	4	metal structure	--	No
P	R2	H4 PMX Chemical Addition MCC Roofed Area Metal overhang w/fiberglass roof (instrumentation and electrical termination ponds) West of H4 Cell Room (#93)	No	1	1	2	shelter, fiberglass	--	No
P	S2	H4 Polarization Rectifier Building Masonry block building (electrical equipment, climate controlled to protect equipment, unmanned) West of H4 Cell Room (#93)	No	1	1	4	brick structure	--	No

Table 7

**Summary of Facility Structures and Determination of Vapor Intrusion Evaluation**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Area <sup>(1)</sup>	Structure Number <sup>(2)</sup> and Structure Description	Occupied <sup>(3)</sup>	Occupancy Load (mhrs/wk)	Individual Occupancy	Peak Occupancy (# of people)	Building Characteristics	Ventilation <sup>(4)</sup>	Evaluate <sup>(5)</sup>
NP	U2 13A MCC Covered Area Metal frame w/metal roof (MCC) North of R&D Pilot Plant (#20)	No	1	1	2	shelter, metal	--	No
P	V2 Perc Supervisor Office Masonry block addition (office - abandoned and locked) North of VCRU Control Room (#51)	No	1	1	2	brick structure	--	No
P	W2 Gas Cylinder Covered Area Metal frame w/Fiberglass roof (gas cylinder storage) West of Maintenance Building (#56)	No	1	1	2	shelter, fiberglass	--	No
P	Y2 Solvent, Truck Loader Shack Metal frame, corrugated transit roof (contains loader's shack, desk, computer, and scale read out)	No	10	1	2	elevated 10 feet in solvent load rack, fiberglass, windows	Yes	No
L	A3 Sand Blast Storage Building Metal-framed w/sheet metal siding (painter material storage) Sand Blast Area	No	2	1	2	fiberglass structure	--	No
L	B3 Sand Blast Building Metal-framed w/sheet metal siding (set up for painting, forklift parking) Sand Blast Area	Yes	60	1	2	slab on grade, corrugated metal, garage doors	No	Yes
P	C3 H&C Contractor Sea-Land Van Metal Conex (insulation storage) Contractor Area	No	2	1	2	no longer present	--	No
P	D3 Conco Contractor Office Trailer Double-wide metal-sided trailer (desks, computers, break area, supplies) Contractor Area	Yes	40	1	10	prefab trailer elevated 3 feet above ground /w skirt, corrugated metal, windows	Yes	Yes*
NP	E3 Conco Contractor Shed Metal-framed w/sheet metal siding (saws and lumber storage) Contractor Area	No	2	1	2	prefab metal shed, slab on grade, corrugated metal, garage door	No	No
P	F3 Conco Contractor Shed Wooden (hand wash station, mobile equipment storage) Contractor Area	No	2	1	2	wooden shed, slab on grade, plywood, open	No	No
NP	G3 Conco Contractors Break Shed Metal-framed, vinyl siding, metal roof Type 13 Modular Building (break area) Contractor Area	Yes	20	4	10	no longer present	--	No
NP	H3 Conco Contractor Break Area/Storage Shed Wooden (break area, material storage) Contractor Area	No	8	4	4	wooden shed, slab on grade, plywood, windows	Yes	No
NP	I3 Conco Contractor Material Storage Shed Metal Conex (material storage) Contractor Area	No	2	1	2	connex on grade - no slab, metal	No	No
NP	J3 WB Contractor Car Port Metal-framed shed (material storage, scooter parking) Contractor Area	No	2	1	2	metal framed shed on grade - no slab, corrugated metal, open	No	No
NP	K3 WB Contractor Construction Material & Tool Trailer Mobile Trailer, single-wide (tools and materials storage, desk) Contractor Area	No	2	1	2	prefab trailer elevated 3 feet off ground /w skirt - no slab, corrugated metals, windows	Yes	No
NP	L3 WB Contractor Construction Office Double-wide Mobile Trailer (desks, computers, printer, training room) Contractor Area	Yes	80	2	15	prefab trailer elevated 3 feet off ground /w skirt - no slab, corrugated metals, door	Yes	Yes*
NP	M3 WB Welding Shop Corrugated Metal Quonsit Hut (welding machines) Contractor Area	Yes	20 to 80	2	4	on grade, quonset hut, corrugated metal, garage doors	No	Yes
NP	N3 Kilian Contractor Hock Box Metal Conex Box (equipment, ladder, tool storage and conduit threading machine) Contractor Area	No	5	1	3	connex on grade - no slab, corrugated metal, door	No	No

Table 7

**Summary of Facility Structures and Determination of Vapor Intrusion Evaluation**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Area <sup>(1)</sup>	Structure Number <sup>(2)</sup> and Structure Description		Occupied <sup>(3)</sup>	Occupancy Load (mhrs/wk)	Individual Occupancy	Peak Occupancy (# of people)	Building Characteristics	Ventilation <sup>(4)</sup>	Evaluate <sup>(5)</sup>
NP	O3	Kilian Contractor Break Trailer Single-wide wooden trailer (desks, microwave, bookcases) Contractor Area	No	10	1	8	prefab wooden shed elevated - no slab, wood siding, windows	Yes	No
NP	P3	Kilian Contractor Material Trailer Metal trailer on wheels (materials and tool storage) Contractor Area	No	2	1	2	box trailer elevated - no skirt/slab, metal	No	No
NP	Q3	Kilian Contractor Shed Metal-framed, sheet metal siding (scooter storage) Contractor Area	No	2	1	2	open frame, no slab, corrugated metal	No	No
NP	R3	Kilian Office Trailer Single-wide mobile trailer elevated from ground (desks, computers) Contractor Area	Yes	80	2	2	prefab trailer elevated 3 feet off ground, no skirt/slab, corrugated metal, windows	Yes	Yes*
NP	S3	Concrete Pillbox Concrete box (empty - abandoned) Contractor Area	No	0	0	0	cinder block structure	--	No
NP	T3	Kilian Contractor Storage Trailer Metal trailer on wheels (tools, cable, parts storage) Contractor Area	No	2	1	2	box trailer elevated, no skirt/slab, corrugated metal	No	No
P & NP	U3	H&C Contractors Break Trailer Single-wide pre-manufactured trailer (break table, metal fabrication trailer) Contractor Area	Yes	80	1	6	prefab trailer elevated 4 feet off ground, no skirt/slab, corrugated metal, windows	Yes	Yes*
P	V3	H&C Contractors Office Trailer Single-wide pre-manufactured trailer (desks, computers, book cases) Contractor Area	Yes	60	1	4	prefab trailer elevated 3 feet off ground, no skirt/slab, corrugated metal, windows	Yes	Yes*
NP	W3	H&C Tool Shed Plastic, pre-manufactured storage shed (tools and electrical cord storage) Contractor Area	No	3	1	1	prefab plastic storage shed elevated on wood pallets	No	No
P	X3	Eisel Resin Storage Trailer Metal trailer on wheels (heated, resin storage) Contractor Area	No	2	1	2	box trailer elevated, no slab, corrugated metal	No	No
P	Y3	Eisel Resin Trailer Metal trailer on wheels (resin storage) Contractor Area	No	2	1	2	box trailer on grade, no slab, corrugated metal, window	Yes	No
P	Z3	Eisel Break Trailer Wooden frame with wood sides elevated from ground (break room, tables) Contractor Area	No	10	7	14	no longer present	--	No
P	A4	Eisel Office Trailer Single-wide pre-manufactured trailer elevated from ground (desks, computers, drafting-table) Contractor Area	Yes	80	2	7	prefab trailer elevated 3 feet off ground, no skirt/slab, corrugated metal	Yes	Yes*
P	B4	PMS Storage Conex Metal Conex (acid, soda ash storage) South of Cogen (#134)	No	2	1	2	metal storage container	--	No
P	C4	Sodium Chlorite Drum/Tote Trailer Metal trailer on wheels (empty drums and totes) South of Cogen (#134)	No	2	1	2	elevated trailer, metal	--	No
P	D4	Sodium Chlorite Drum/Tote Trailer Metal trailer on wheels (empty drums and totes) South of Cogen (#134)	No	2	1	2	elevated trailer, metal	--	No
P	E4	Sodium Chlorite Drum/Tote Trailer Metal trailer on wheels (empty drums and totes) South of Cogen (#134)	No	2	1	2	elevated trailer, metal	--	No

Table 7

**Summary of Facility Structures and Determination of Vapor Intrusion Evaluation**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Area <sup>(1)</sup>	Structure Number <sup>(2)</sup> and Structure Description	Occupied <sup>(3)</sup>	Occupancy Load (mhrs/wk)	Individual Occupancy	Peak Occupancy (# of people)	Building Characteristics	Ventilation <sup>(4)</sup>	Evaluate <sup>(5)</sup>
P	F4 Kilian Contractors Storage Trailer Metal trailer on wheels (empty drums and totes) West of Cogen (#134)	No	2	1	2	metal box trailer on wheels, no skirt	No	No
P	G4 H&C Storage Conex Metal Conex (insulation material storage) South of South Area Maint (#120)	No	2	1	2	no longer present	--	No
P	H4 H&C Storage Conex Metal Conex (insulation material storage) North of the M1 Control Room (#142)	No	2	1	2	no longer present	--	No
P	I4 M1 Emergency Generator MCC Prefabricated concrete Electrical gear North of the M1 Control Room (#138)	No	2	2	4	concrete structure	--	No
NP	J4 New Guard Shack (masonry walls, wooden framed roof (desk, chair, computer, cameras) South of Original Admin. Bldg (#57)	Yes	100	2	6	elevated slab, brick, windows	Yes	Yes
P	L4 Asbestos storage containers 20"x8" steel storage containers on concrete piers	No	1	1	1	elevated, metal	--	No

Notes:

mhrs/wk man hours per week

(1) Area within the Facility is defined as the following:

- L - Landfill Area
- P - Process Area
- NP- Non-Process Area

(2) Structure # matches numbers shown on Figures 9 to 13.

(3) Structure is considered to be occupied if occupancy loading is greater than 17 man hours per week (or 10%).

Determined by Occupancy Load (mhrs/wk) divided by total hours within a week (168 hours/wk).

(4) Building ventilation may consist of HVAC, ventilation fan and/or other air circulation

(5) Structure should be considered for evaluation based on occupancy loading and structure in contact with ground surface as indicated with a "Yes" for structures or "Yes\*" for trailers.

**Table 8****Summary of Soil Gas Criteria for Chemicals of Potential Concern (COPCs)**

Occidental Chemical Corporation

Wichita, Kansas

COPCs	Units	Soil Gas Criteria (1)		
		TR = 1E-06; HI = 0.1	TR = 1E-05; HI = 0.1	TR = 1E-04; HI = 0.1
<b>SVOCs</b>				
2-Chlorophenol	µg/m <sup>3</sup>	NV	NV	NV
3/4-Chlorophenol	µg/m <sup>3</sup>	NV	NV	NV
Hexachlorobenzene	µg/m <sup>3</sup>	0.89 (C)	8.9 (C)	89 (C)
Hexachlorobutadiene	µg/m <sup>3</sup>	19 (C)	190 (C)	1900 (C)
Hexachloroethane	µg/m <sup>3</sup>	37 (C)	370 (C)	440 (NC)
<b>VOCs</b>				
1,1,1-Trichloroethane	µg/m <sup>3</sup>	73000 (NC)	73000 (NC)	73000 (NC)
1,2-Dichloroethane	µg/m <sup>3</sup>	16 (C)	100 (NC)	100 (NC)
1,2-Dichloropropane	µg/m <sup>3</sup>	41 (C)	58 (NC)	58 (NC)
Benzene	µg/m <sup>3</sup>	52 (C)	440 (NC)	440 (NC)
Carbon tetrachloride	µg/m <sup>3</sup>	68 (C)	680 (C)	1500 (NC)
Chloroform	µg/m <sup>3</sup>	18 (C)	180 (C)	1400 (NC)
Methylene chloride	µg/m <sup>3</sup>	8800 (NC)	8800 (NC)	8800 (NC)
Tetrachloroethylene	µg/m <sup>3</sup>	580 (NC)	580 (NC)	580 (NC)
Trichloroethylene	µg/m <sup>3</sup>	29 (NC)	29 (NC)	29 (NC)
Vinyl chloride	µg/m <sup>3</sup>	93 (C)	930 (C)	1500 (NC)

## Notes:

NV No Value.

C Soil gas criterion based on carcinogenic risk.

NC Soil gas criterion based on non-carcinogenic hazard index.

(1) OSWER Vapor Intrusion Assessment, Vapor Intrusion Screening Level (VISL) Calculator Version 3.4, June 2015 RSLs and updates.

Commercial Land Use, Average groundwater temperature = 15.5°C.

# Appendices

# Appendix A

## Analytical Data for the Vapor Intrusion Evaluation

Table A.1

**Summary of Soil Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	AR-1	AR-1	AR-2	AR-2	AR-3	AR-3	AR-4	AR-4	AR-5	AR-5	AR-6	AR-6	AR-7
Sample ID:	S-040412-AK-130	S-040412-AK-129	S-040412-AK-132	S-040412-AK-131	S-040412-AK-134	S-040412-AK-133	S-040412-AK-136	S-040412-AK-135	S-040512-AK-140	S-040512-AK-139	S-040512-AK-142	S-040512-AK-141	S-040512-AK-144
Sample Date:	4/4/2012	4/4/2012	4/4/2012	4/4/2012	4/4/2012	4/4/2012	4/4/2012	4/4/2012	4/5/2012	4/5/2012	4/5/2012	4/5/2012	4/5/2012
Sample Depth:	(5-7) ft BGS	(30-32) ft BGS	(5-7) ft BGS	(30-32) ft BGS	(5-9) ft BGS	(29.5-31.5) ft BGS	(5-7) ft BGS	(30.5-32.5) ft BGS	(5-7) ft BGS	(30-32) ft BGS	(5-7) ft BGS	(30-32) ft BGS	(5-7) ft BGS
Parameters	Units												
<b>Herbicides</b>													
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.03 U	0.02 U				
Pentachlorophenol	mg/kg	0.02 U	0.02 U	0.02 U	0.07	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.03 U	0.02 U
<b>Semi-volatile Organic Compounds</b>													
2,3,4,5-Tetrachlorophenol	mg/kg	2.4 U	2.3 U	2.4 U	2.4 U	2.4 U	2.3 U	2.4 U	2.1 U	2.4 U	2.6 U	2.4 U	2.8 U
2,3,4,6-Tetrachlorophenol	mg/kg	2.4 U	2.3 U	2.4 U	2.4 U	2.4 U	2.3 U	2.4 U	2.1 U	2.4 U	2.6 U	2.4 U	2.8 U
2,4,5-Trichlorophenol	mg/kg	0.6 U	0.6 U	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U	0.7 U				
2,4,6-Trichlorophenol	mg/kg	0.6 U	0.6 U	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U	0.6 U				
2,4-Dichlorophenol	mg/kg	0.6 U	0.6 U	0.6 U	0.5 U	0.6 U	0.6 U	0.7 U	0.6 U				
2,5-Dichlorophenol	mg/kg	1.2 U	1.1 U	1.2 U	1.1 U	1.2 U	1.3 U	1.2 U	1.4 U				
2,6-Dichlorophenol	mg/kg	0.6 U	0.6 U	0.6 U	0.5 U	0.6 U	0.6 U	0.7 U	0.6 U				
2-Chlorophenol	mg/kg	0.6 U	0.6 U	0.6 U	0.5 U	0.6 U	0.6 U	0.7 U	0.6 U				
3/4-Chlorophenol	mg/kg	2.4 U	2.3 U	2.4 U	2.4 U	2.4 U	2.3 U	2.4 U	2.1 U	2.4 U	2.6 U	2.4 U	2.8 U
alpha-BHC	mg/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.03 U				
beta-BHC	mg/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.03 U				
delta-BHC	mg/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.03 U				
gamma-BHC (lindane)	mg/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.03 U				
Hexachlorobenzene	mg/kg	0.02 U	1.7	0.02 U	9	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.03 U
Hexachlorobutadiene	mg/kg	0.02 U	57	0.02 U	640	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.03 U
Hexachloroethane	mg/kg	0.02 U	0.9	0.02 U	34	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.03 U
<b>Volatile Organic Compounds</b>													
1,1,1-Trichloroethane	mg/kg	0.063	5	0.0035 U	0.006 U	0.0049 U	0.0051 U	0.0049 U	0.0045 U	0.0049 U	0.0064 U	0.0046 U	0.0063 U
1,2-Dichloroethane	mg/kg	0.25	2 U	0.0035 U	0.006 U	0.0049 U	0.0051 U	0.0049 U	0.0045 U	0.0521	0.0064 U	0.0046 U	0.0063 U
1,2-Dichloropropane	mg/kg	0.02 U	2 U	0.0035 U	0.006 U	0.0049 U	0.0051 U	0.0049 U	0.0045 U	0.0049 U	0.0064 U	0.0046 U	0.0063 U
Benzene	mg/kg	0.02 U	2 U	0.0035 U	0.006 U	0.0049 U	0.0051 U	0.0049 U	0.0045 U	0.0049 U	0.0064 U	0.0046 U	0.0063 U
Carbon tetrachloride	mg/kg	1.53	2 U	0.04	0.03 U	0.056	0.03 U	0.0489	0.11	0.03 U	0.06	0.0076	0.0189 J
Chloroform (Trichloromethane)	mg/kg	3.1	17	1.55	0.03 U	0.087	0.0676	0.0333	0.0543	0.03 U	0.0715	0.0049	0.0224 J
Chloromethane (Methyl chloride)	mg/kg	0.02 U	2 U	0.0035 U	0.006 U	0.0049 U	0.0051 U	0.0049 U	0.0045 U	0.0049 U	0.0064 U	0.0046 U	0.0063 U
Methylene chloride	mg/kg	0.02 U	2 U	0.0035 U	0.0061 U	0.0049 U	0.0051 U	0.0049 U	0.0045 U	0.0049 U	0.0064 U	0.0046 U	0.0063 U
Tetrachloroethene	mg/kg	1.44	975	0.0326	0.006 U	0.0214 J	0.0747	0.015	0.0638	0.0049 U	0.0064 U	0.033	0.101 J
Trichloroethene	mg/kg	0.04	3	0.0035 U	0.0421	0.0049 U	0.0051 U	0.0049 U	0.0045 U	0.0178	0.0192	0.0046 U	0.0063 U
Vinyl chloride	mg/kg	0.02 U	2 U	0.0035 U	0.006 U	0.0049 U	0.0051 U	0.0049 U	0.0045 U	0.0049 U	0.0064 U	0.0046 U	0.0063 U
<b>General Chemistry</b>													
Chloride	mg/kg	395	64	260	273	670 J	56 J	56 J	35 J	800 J	41 J	332 J	47 J
													267

Notes:

U Not Detected.

J Estimated Value

x/x Sample result/Duplicate result

Table A.1

**Summary of Soil Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	AR-7	AR-7	AR-8	AR-8	AR-9	AR-9	AR-10	AR-10	CM-1	CM-2	CM-3	CM-3	CM-4	
Sample ID:	S-040512-AK-145	S-040512-AK-143	S-040512-AK-148	S-040512-AK-147	S-040512-AK-150	S-040512-AK-149	S-040612-AK-152	S-040612-AK-151	S-030612-AK-001	S-030612-AK-002	S-030612-AK-003	S-032112-AK-055	S-030612-AK-004	
Sample Date:	4/5/2012	4/5/2012	4/5/2012	4/5/2012	4/5/2012	4/5/2012	4/6/2012	4/6/2012	3/6/2012	3/6/2012	3/6/2012	3/21/2012	3/6/2012	
Sample Depth:	(10-13.5) ft BGS	(30-32) ft BGS	(12-14) ft BGS	(34-36) ft BGS	(5-9) ft BGS	(29.5-31.5) ft BGS	(5-7) ft BGS	(29-31) ft BGS	(7.5-9.5) ft BGS	(10-12) ft BGS	(17.5-19.5) ft BGS	(30-35) ft BGS	(7.5-9.5) ft BGS	
<b>Parameters</b>		<b>Units</b>												
<b>Herbicides</b>														
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	
Pentachlorophenol	mg/kg	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.4	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	
<b>Semi-volatile Organic Compounds</b>														
2,3,4,5-Tetrachlorophenol	mg/kg	2.3 U/2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.2 U	2.3 U	2.1 U	2.3 U	2.4 U	2.1 U	2.4 U	
2,3,4,6-Tetrachlorophenol	mg/kg	2.3 U/2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.2 U	2.3 U	2.1 U	2.3 U	2.4 U	2.1 U	2.4 U	
2,4,5-Trichlorophenol	mg/kg	0.6 U/0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.5 U	0.6 U	0.6 U	0.5 U	0.6 U	
2,4,6-Trichlorophenol	mg/kg	0.6 U/0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.5 U	0.6 U	0.6 U	0.5 U	0.6 U	
2,4-Dichlorophenol	mg/kg	0.6 U/0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.5 U	0.6 U	0.6 U	0.5 U	0.6 U	
2,5-Dichlorophenol	mg/kg	1.2 U/1.2 U	1.1 U	1.2 U	1.2 U	1.1 U	1.1 U	1.2 U	1.1 U	1.1 U	1.2 U	1.0 U	1.2 U	
2,6-Dichlorophenol	mg/kg	0.6 U/0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.5 U	0.6 U	0.6 U	0.5 U	0.6 U	
2-Chlorophenol	mg/kg	0.6 U/0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.5 U	0.6 U	0.6 U	0.5 U	0.6 U	
3/4-Chlorophenol	mg/kg	2.3 U/2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.2 U	2.3 U	2.1 U	2.3 U	2.4 U	2.1 U	2.4 U	
alpha-BHC	mg/kg	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	
beta-BHC	mg/kg	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	
delta-BHC	mg/kg	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	
gamma-BHC (lindane)	mg/kg	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	
Hexachlorobenzene	mg/kg	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.04	0.02 U	
Hexachlorobutadiene	mg/kg	0.02 U/0.02 U	0.04	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.08 J	0.02 U	
Hexachloroethane	mg/kg	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03	0.02 U	
<b>Volatile Organic Compounds</b>														
1,1,1-Trichloroethane	mg/kg	0.67/0.65	0.18	0.05 U	0.03	0.02 U	0.05 U	0.0046 U	0.0053 U	0.0613	0.072	0.0052 U	0.0059 U	0.0049
1,2-Dichlorethane	mg/kg	0.13/0.17	0.02 U	0.05 U	0.02 U	0.02 U	0.05 U	0.0046 U	0.0053 U	0.0041 U	0.0049 U	0.0052 U	0.0059 U	0.0048 U
1,2-Dichloropropane	mg/kg	0.04 U/0.05 U	0.02 U	0.05 U	0.02 U	0.02 U	0.05 U	0.0046 U	0.0053 U	0.0041 U	0.0049 U	0.0052 U	0.0059 U	0.0048 U
Benzene	mg/kg	0.04 U/0.05 U	0.02 U	0.05 U	0.02 U	0.02 U	0.05 U	0.0046 U	0.0053 U	0.0041 U	0.0049 U	0.0052 U	0.0059 U	0.0048 U
Carbon tetrachloride	mg/kg	2.13/2.31	0.56	0.5 J	1.01	0.02 U	0.58	0.0046 U	0.0053 U	0.3	0.0049 U	0.0209	0.011	0.0048 U
Chloroform (Trichloromethane)	mg/kg	5.39/5.55	0.39	6.24 J	3.37	8.47	4.5	0.0518	0.0212	5.6	0.0049 U	0.053	0.011	0.0048 U
Chloromethane (Methyl chloride)	mg/kg	0.04 U/0.05 U	0.02 U	0.05 U	0.02 U	0.02 U	0.05 U	0.0046 U	0.0053 U	0.0041 U	0.0049 U	0.0052 U	0.0059 U	0.0048 U
Methylene chloride	mg/kg	0.04 U/0.05 U	0.02 U	0.06 U	0.02 U	0.03 U	0.05 U	0.0046 U	0.0053 U	0.0041 U	0.0049 U	0.0052 U	0.0059 U	0.0048 U
Tetrachloroethene	mg/kg	4.47/4.42	2.8	0.74 J	0.57	0.074	0.4	0.007	0.0053 U	0.4	0.0049 U	0.0128	0.0183	0.0048 U
Trichloroethene	mg/kg	0.08/0.08	0.02 U	0.05 U	0.02 U	0.02 U	0.05 U	0.0046 U	0.0053 U	0.0259	0.0199	0.0052 U	0.0059 U	0.012
Vinyl chloride	mg/kg	0.04 U/0.05 U	0.02 U	0.05 U	0.02 U	0.02 U	0.05 U	0.0046 U	0.0053 U	0.0041 U	0.0049 U	0.0052 U	0.0059 U	0.0048 U
<b>General Chemistry</b>														
Chloride	mg/kg	222/172	25	40	28	44	30	67	16	40	22	26	80	92

Notes:

U Not Detected.

J Estimated Value

x/x Sample result/Duplicate result

Table A.1

**Summary of Soil Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	CM-5	CM-5	CM-6	CM-7	CM-7	CM-8	CM-9	CM-10	CM-11	CM-12	CM-13	CM-17	CM-18	
Sample ID:	S-030712-AK-005	S-032112-AK-054	S-030712-AK-007	S-030712-AK-008	S-040212-AK-114	S-030712-AK-009	S-030812-AK-010	S-030812-AK-011	S-030812-AK-012	S-030912-AK-013	S-030912-AK-015	S-031212-AK-020	S-031212-AK-021	
Sample Date:	3/7/2012	3/21/2012	3/7/2012	3/7/2012	4/2/2012	3/7/2012	3/8/2012	3/8/2012	3/8/2012	3/9/2012	3/9/2012	3/12/2012	3/12/2012	
Sample Depth:	(17.5-20.5) ft BGS	(30-32) ft BGS	(17.5-19.5) ft BGS	(7.5-9.5) ft BGS	(30.5-32.5) ft BGS	(7.5-9.5) ft BGS	(7.5-9.5) ft BGS	(6-8) ft BGS	(17.5-19.5) ft BGS	(7.5-10.5) ft BGS	(7.5-9.5) ft BGS	(10-12) ft BGS	(10-12) ft BGS	
Parameters	Units													
<b>Herbicides</b>														
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	
Pentachlorophenol	mg/kg	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	
<b>Semi-volatile Organic Compounds</b>														
2,3,4,5-Tetrachlorophenol	mg/kg	2.1 U/2.2 U	2.3 U	1.9 U	2.4 U	2.1 U	2.4 U	2.4 U	2.1 U	2.4 U/2.3 U	2.4 U	2.3 U	2.4 U	
2,3,4,6-Tetrachlorophenol	mg/kg	2.1 U/2.2 U	2.3 U	1.9 U	2.4 U	2.1 U	2.4 U	2.4 U	2.1 U	2.4 U/2.3 U	2.4 U	2.3 U	2.4 U	
2,4,5-Trichlorophenol	mg/kg	0.5 U/0.5 U	0.6 U	0.5 U	0.6 U	0.5 U	0.6 U	0.6 U	0.5 U	0.6 U/0.6 U	0.6 U	0.6 U	0.6 U	
2,4,6-Trichlorophenol	mg/kg	0.5 U/0.5 U	0.6 U	0.5 U	0.6 U	0.5 U	0.6 U	0.6 U	0.5 U	0.6 U/0.6 U	0.6 U	0.6 U	0.6 U	
2,4-Dichlorophenol	mg/kg	0.5 U/0.5 U	0.6 U	0.5 U	0.6 U	0.5 U	0.6 U	0.6 U	0.5 U	0.6 U/0.6 U	0.6 U	0.6 U	0.6 U	
2,5-Dichlorophenol	mg/kg	1.0 U/1.1 U	1.1 U	0.96 U	1.2 U	1.0 U	1.2 U	1.2 U	1.0 U	1.2 U/1.1 U	1.2 U	1.2 U	1.2 U	
2,6-Dichlorophenol	mg/kg	0.5 U/0.5 U	0.6 U	0.5 U	0.6 U	0.5 U	0.6 U	0.6 U	0.5 U	0.6 U/0.6 U	0.6 U	0.6 U	0.6 U	
2-Chlorophenol	mg/kg	0.5 U/0.5 U	0.6 U	0.5 U	0.6 U	0.5 U	0.6 U	0.6 U	0.5 U	0.6 U/0.6 U	0.6 U	0.6 U	0.6 U	
3/4-Chlorophenol	mg/kg	2.1 U/2.2 U	2.3 U	1.9 U	2.4 U	2.1 U	2.4 U	2.4 U	2.1 U	2.4 U/2.3 U	2.4 U	2.3 U	2.4 U	
alpha-BHC	mg/kg	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	
beta-BHC	mg/kg	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	
delta-BHC	mg/kg	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	
gamma-BHC (lindane)	mg/kg	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	
Hexachlorobenzene	mg/kg	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.09	0.02 U	0.02 U	0.02 U	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	
Hexachlorobutadiene	mg/kg	0.02 U/0.02 U	0.04	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U/0.02 U	0.04	0.02 U	0.02 U	
Hexachloroethane	mg/kg	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U/0.02 U	0.03	0.02 U	0.02 U	
<b>Volatile Organic Compounds</b>														
1,1,1-Trichloroethane	mg/kg	0.0052 U/0.04 U	0.03 U	0.0046 U	0.0047 U	0.03 U	0.0049 U	0.0047 U	0.0049 U	0.0047 U	0.0047 U/0.0043 U	0.0291	0.09 U	0.05 U
1,2-Dichloroethane	mg/kg	0.0052 U/0.0041 U	0.03 U	0.0046 U	0.012	0.03 U	0.0049 U	0.0047 U	0.0049 U	0.0047 U	0.41/0.24	1.1	0.09 U	0.05 U
1,2-Dichloropropane	mg/kg	0.0052 U/0.0041 U	0.03 U	0.0046 U	0.0047 U	0.03 U	0.0049 U	0.0047 U	0.0049 U	0.0047 U	0.55/0.20	2	0.29	0.05 U
Benzene	mg/kg	0.0052 U/0.0041 U	0.03 U	0.0046 U	0.0047 U	0.03 U	0.0146	0.0047 U	0.0049 U	0.0047 U	0.0053/0.0043 U	0.0141	0.09 U	0.05 U
Carbon tetrachloride	mg/kg	0.0086 J/1.55 J	0.04	0.066	3.5	0.38	0.0049 U	0.0436	0.29	0.29	0.8 J/0.28 J	7.89	1.3	4.46
Chloroform (Trichloromethane)	mg/kg	0.0052 UJ/0.43 J	0.03	5.84	13.2	1.15	0.0174	0.12	1.9	7.07	4.16/1.5	11.3	7.5	3.88
Chloromethane (Methyl chloride)	mg/kg	0.0052 U/0.0041 U	0.03 U	0.0046 U	0.0047 U	0.03 U	0.0049 U	0.0047 U	0.0049 U	0.0047 U	0.0047 U/0.0043 U	0.0046 U	0.09 U	0.05 U
Methylene chloride	mg/kg	0.0052 U/0.0041 U	0.03 U	1.99	0.0152	0.29	0.0049 U	0.0047 U	0.0049 U	0.0047 U	0.2/0.1	1.3	0.09 U	0.05 U
Tetrachloroethene	mg/kg	0.0052 UJ/0.11 J	0.03 U	0.01	0.5 U	0.05	0.0049 U	0.0229	0.0841	0.0143	0.87/0.32	4.5	1.1	3.23
Trichloroethene	mg/kg	0.0052 U/0.0041 U	0.03 U	0.0071	0.0663	0.03 U	0.0049 U	0.0059	0.03	0.0047 U	0.09/0.0744	0.3	0.1	0.1
Vinyl chloride	mg/kg	0.0052 U/0.0041 U	0.03 U	0.0046 U	0.0047 U	0.03 U	0.0049 U	0.0047 U	0.0049 U	0.0047 U	0.0047 U/0.0043 U	0.0046	0.09 U	0.05 U
<b>General Chemistry</b>														
Chloride	mg/kg	25/36	148	118	224	62	56	12 U	51	135	174/110	334	75	249

Notes:

- U Not Detected.
- J Estimated Value
- x/x Sample result/Duplicate result

Table A.1

**Summary of Soil Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	CM-18	CM-19	CM-19	CM-20	CM-21	CM-21	CM-22	CM-22	CM-23	CM-24	CM-25	CM-26	CM-27
Sample ID:	S-032112-AK-057	S-031212-AK-022	S-031212-AK-023	S-031212-AK-024	S-031212-AK-025	S-040212-AK-115	S-031312-AK-026	S-031312-AK-027	S-031312-AK-029	S-031412-AK-030	S-031412-AK-031	S-031412-AK-033	S-031412-AK-034
Sample Date:	3/21/2012	3/12/2012	3/12/2012	3/13/2012	3/13/2012	4/2/2012	3/13/2012	3/13/2012	3/13/2012	3/14/2012	3/14/2012	3/14/2012	3/14/2012
Sample Depth:	(27.5-32.5) ft BGS	(7.5-8.5) ft BGS	(17.5-18.5) ft BGS	(9-11) ft BGS	(5-7) ft BGS	(22.5-24.5) ft BGS	(5-7) ft BGS	(37.5-40.5) ft BGS	(6-7.5) ft BGS	(5.5-7.5) ft BGS	(5.5-7.5) ft BGS	(9.5-13.5) ft BGS	(7.5-9.5) ft BGS
<b>Parameters</b>													
<b>Units</b>													
<b>Herbicides</b>													
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U/0.04	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Pentachlorophenol	mg/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.06/0.07	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
<b>Semi-volatile Organic Compounds</b>													
2,3,4,5-Tetrachlorophenol	mg/kg	2.2 U	2.4 U	2.1 U	2.4 U	2.4 U	2.3 U	2.4 U	2.3 U/2.3 U	2.4 U	2.4 U	2.4 U	2.4 U
2,3,4,6-Tetrachlorophenol	mg/kg	2.2 U	2.4 U	2.1 U	2.4 U	2.4 U	2.3 U	2.4 U	2.3 U/2.3 U	2.4 U	2.4 U	2.4 U	2.4 U
2,4,5-Trichlorophenol	mg/kg	0.5 U	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U/0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
2,4,6-Trichlorophenol	mg/kg	0.5 U	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U/0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
2,4-Dichlorophenol	mg/kg	0.5 U	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U/0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
2,5-Dichlorophenol	mg/kg	1.1 U	1.2 U	1.1 U	1.2 U	1.2 U	1.1 U	1.2 U	1.1 U/1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
2,6-Dichlorophenol	mg/kg	0.5 U	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U/0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
2-Chlorophenol	mg/kg	0.5 U	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U/0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
3,4-Chlorophenol	mg/kg	2.2 U	2.4 U	2.1 U	2.4 U	2.4 U	2.3 U	2.4 U	2.3 U/2.3 U	2.4 U	2.4 U	2.4 U	2.4 U
alpha-BHC	mg/kg	0.02 U	0.02 U	0.02 U	0.04	0.02 U	0.02 U	0.06 U	0.6 U/0.6 U	0.02 U	0.02 U	0.02 U	0.02 U
beta-BHC	mg/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03	0.06 U	0.6 U/0.6 U	0.07	0.02 U	0.02 U
delta-BHC	mg/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.06 U	0.6 U/0.6 U	0.02 U	0.02 U	0.02 U	0.02 U
gamma-BHC (lindane)	mg/kg	0.02 U	0.02 U	0.02 U	0.03	0.02 U	0.02 U	0.06 U	0.6 U/0.6 U	0.02 U	0.02 U	0.02 U	0.02 U
Hexachlorobenzene	mg/kg	0.02 U	0.52	0.39	0.02 U	0.02 U	2.5	0.06 U	80/40	0.02 U	0.06	0.02 U	0.02 U
Hexachlorobutadiene	mg/kg	0.03	0.1	0.03	0.02 U	0.1	0.02	1.3	380/140	0.04	1.5	0.02 U	0.02 U
Hexachloroethane	mg/kg	0.02	0.02 U	0.02 U	0.02 U	0.07	0.02 U	0.9	320 J/97 J	0.04	0.8	0.02 U	0.02 U
<b>Volatile Organic Compounds</b>													
1,1,1-Trichloroethane	mg/kg	0.03 U	0.1	0.03 U	0.21	0.09 U	0.0122	0.2 U	30/86	0.2 U	0.2 U	0.5 U	0.02 U
1,2-Dichloroethane	mg/kg	0.03 U	0.2	0.03 U	0.07	0.09 U	0.005 U	0.2 U	10 U/20 U	0.2 U	0.97	42.6	0.02 U
1,2-Dichloropropane	mg/kg	0.03 U	0.1 U	0.03 U	0.04 U	0.09 U	0.011	0.2 U	10 U/20 U	0.2 U	0.3	18.6	0.064
Benzene	mg/kg	0.03 U	0.1 U	0.03 U	0.04 U	0.09 U	0.005 U	0.2 U	10 U/20 U	0.2 U	0.2 U	0.5 U	0.02 U
Carbon tetrachloride	mg/kg	0.03	9.26	0.055	6.63	0.36	0.43	3.1	1090/2850	8.12	19.8	9.4	0.913 J
Chloroform (Trichloromethane)	mg/kg	0.065	5.86	0.04	4.31	6.46	0.38	1.4	20/50	0.66	26.5	17	0.83 J
Chloromethane (Methyl chloride)	mg/kg	0.03 U	0.1 U	0.03 U	0.04 U	0.09 U	0.005 U	0.2 U	10 U/20 U	0.2 U	0.2 U	0.5 U	0.02 U
Methylene chloride	mg/kg	0.03 U	0.37	0.03 U	0.04 U	0.2	0.005 U	0.2 U	10 U/20 U	0.2 U	8.73	4.7	0.02 U
Tetrachloroethene	mg/kg	0.04	5.37	0.05	4.16	9.15	0.28	25.5	1040/2640	2.5	15.8	6	0.692
Trichloroethene	mg/kg	0.03 U	0.2	0.03 U	0.25	0.2	0.0154	3.6	10 U/20 U	0.2 U	0.5	0.5 U	0.075
Vinyl chloride	mg/kg	0.03 U	0.1 U	0.03 U	0.04 U	0.2	0.005 U	0.2 U	10 U/20 U	0.2 U	0.2 U	0.5 U	0.02 U
<b>General Chemistry</b>													
Chloride	mg/kg	79	796	137	1410	1000	470	379	359/325	65	1890	674	580
													1290

Notes:

U Not Detected.  
J Estimated Value  
x/x Sample result/Duplicate result

Table A.1

**Summary of Soil Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	CM-28	CM-29	CM-29	CM-30	CM-31	CM-31	CM-32	CM-33	CM-33	CM-34	CM-35	CM-36	CM-36
Sample ID:	S-031512-AK-036	S-031512-AK-037	S-031512-AK-038	S-031512-AK-039	S-031512-AK-040	S-031512-AK-041	S-031612-AK-042	S-031612-AK-044	S-031612-AK-043	S-031912-AK-045	S-031912-AK-046	S-032012-AK-048	S-032012-AK-047
Sample Date:	3/15/2012	3/15/2012	3/15/2012	3/15/2012	3/15/2012	3/15/2012	3/16/2012	3/16/2012	3/16/2012	3/19/2012	3/19/2012	3/20/2012	3/20/2012
Sample Depth:	(8.5-10.5) ft BGS	(5-7.5) ft BGS	(17.5-19.5) ft BGS	(5-7.5) ft BGS	(17.5-19.5) ft BGS	(32.5-35) ft BGS	(5-7.5) ft BGS	(5-10) ft BGS	(39-41) ft BGS	(17-19) ft BGS	(5-7) ft BGS	(15-17) ft BGS	(30-32.5) ft BGS
<b>Parameters</b>		<b>Units</b>											
<b>Herbicides</b>													
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.5 U	0.2 U	0.02 U	0.02 U	0.02 U	0.03 U
Pentachlorophenol	mg/kg	0.02 U	0.02 U	0.02 U	1.6	0.72	2.1	0.02 U	38	13	0.02 U	0.02 U	0.03 U
<b>Semi-volatile Organic Compounds</b>													
2,3,4,5-Tetrachlorophenol	mg/kg	2.2 U	2.4 U	2.2 U	2.4 U	2.2 U	2.0 U	2.4 U	2.5 U	2.4 U	2.1 U	2.4 U	2.2 U
2,3,4,6-Tetrachlorophenol	mg/kg	2.2 U	2.4 U	2.2 U	2.4 U	2.2 U	2.0 U	2.4 U	2.5 U	11	2.1 U	2.4 U	2.2 U
2,4,5-Trichlorophenol	mg/kg	0.5 U	0.6 U	0.5 U	0.6 U	0.5 U	0.5 U	0.6 U	0.6 U	0.6 U	0.5 U	0.6 U	0.5 U
2,4,6-Trichlorophenol	mg/kg	0.5 U	0.6 U	0.5 U	0.6 U	0.5 U	0.5 U	0.6 U	0.6 U	2.4	0.5 U	0.6 U	0.5 U
2,4-Dichlorophenol	mg/kg	0.5 U	0.6 U	0.5 U	1.4	0.5 U	0.5 U	0.6 U	0.6 U	0.5 U	0.6 U	0.5 U	0.7 U
2,5-Dichlorophenol	mg/kg	1.1 U	1.2 U	1.1 U	1.2 U	1.1 U	1.0 U	1.2 U	1.2 U	1.2 U	1.0 U	1.2 U	1.1 U
2,6-Dichlorophenol	mg/kg	0.5 U	0.6 U	0.5 U	0.6 U	0.5 U	0.5 U	0.6 U	0.6 U	0.6 U	0.5 U	0.6 U	0.7 U
2-Chlorophenol	mg/kg	0.5 U	0.6 U	0.5 U	0.6 U	0.5 U	0.5 U	0.6 U	0.6 U	0.6 U	0.5 U	0.6 U	0.5 U
3,4-Chlorophenol	mg/kg	2.2 U	2.4 U	2.2 U	2.4 U	2.2 U	2.0 U	2.4 U	2.5 U	2.4 U	2.1 U	2.4 U	2.2 U
alpha-BHC	mg/kg	0.02 U	0.24	0.02 U	0.83	0.05	0.7	0.02 U	0.1	5.7 J	0.02 U	0.02 U	0.02 U
beta-BHC	mg/kg	0.085	0.24	0.02 U	0.59	0.02 U	0.03	0.02 U	0.55	0.6 U	0.03	0.02 U	0.03 U
delta-BHC	mg/kg	0.02 U	0.2 U	0.02 U	0.17	0.02 U	0.04	0.02 U	0.05 U	0.6 U	0.02 U	0.02 U	0.03 U
gamma-BHC (lindane)	mg/kg	0.02 U	0.2 U	0.02 U	0.34	0.02 U	0.12	0.02 U	0.05 U	1	0.02 U	0.02 U	0.03 U
Hexachlorobenzene	mg/kg	0.02 U	2.2	0.02 U	0.23	0.02	0.05	0.02 U	0.2	3.3 J	0.02 U	0.02 U	0.03 U
Hexachlorobutadiene	mg/kg	0.02 U	8.5	0.02 U	0.11	0.18	0.25	0.02 U	0.7	18	0.02 U	0.02 U	0.03 U
Hexachloroethane	mg/kg	0.02 U	73	0.02 U	0.13	0.57	0.8	0.04	0.1	37	0.02 U	0.02 U	0.04
<b>Volatile Organic Compounds</b>													
1,1,1-Trichloroethane	mg/kg	0.02 U	0.2 U	0.03 U	0.2 U	0.03 U	0.03 U	0.05 U	0.03 U	10 U	0.03 U	0.03 U	0.04 U
1,2-Dichlorethane	mg/kg	0.02 U	0.2 U	0.03 U	0.2 U	0.03 U	0.03 U	0.05 U	0.03 U	10 U	0.03 U	0.03 U	0.04 U
1,2-Dichloropropane	mg/kg	0.14	0.2 U	0.03 U	0.2 U	0.03 U	0.03 U	0.05 U	0.03 U	10 U	0.03 U	0.03 U	0.04 U
Benzene	mg/kg	0.02 U	0.2 U	0.03 U	0.2 U	0.03 U	0.03 U	0.05 U	0.03 U	10 U	0.03 U	0.03 U	0.04 U
Carbon tetrachloride	mg/kg	2.02	13	0.05	2.6	0.071	0.3	4.77	0.808	1020	0.44	0.03 U	0.03 U
Chloroform (Trichloromethane)	mg/kg	1.35	3.3	0.03 U	5.05	1.02	0.631	2.73	0.31	10 U	0.729	0.05	0.097
Chloromethane (Methyl chloride)	mg/kg	0.02 U	0.2 U	0.03 U	0.2 U	0.03 U	0.03 U	0.05 U	0.03 U	10 U	0.03 U	0.03 U	0.04 U
Methylene chloride	mg/kg	0.02 U	0.2 U	0.03 U	0.2 U	0.21	0.19	0.05 U	0.19	10 U	0.03 U	0.04 U	0.03 U
Tetrachloroethene	mg/kg	1.28	25.3	0.059	17.8	0.05	0.662	2.2	1.1	655	0.17	0.03 U	0.03 U
Trichloroethene	mg/kg	0.04	0.2 U	0.03 U	0.2 U	0.03 U	0.03 U	0.05 U	0.03 U	10 U	0.03 U	0.03 U	0.06
Vinyl chloride	mg/kg	0.02 U	0.2 U	0.03 U	0.2 U	0.03 U	0.03 U	0.05 U	0.03 U	10 U	0.03 U	0.03 U	0.04 U
<b>General Chemistry</b>													
Chloride	mg/kg	92	306	139	520	850	110	579	151	176	51	16	48
													35

Notes:

U Not Detected.

J Estimated Value

x/x Sample result/Duplicate result

Table A.1

**Summary of Soil Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	CM-37	CM-37	CM-38	CM-38	CM-39	CM-39	CM-39	CM-40	CM-40	CM-41	CM-42	CM-42	CM-43
Sample ID:	S-032012-AK-050	S-032012-AK-049	S-032012-AK-051	S-032012-AK-053	S-033012-AK-111	S-032212-AK-059	S-032212-AK-058	S-032212-AK-061	S-032212-AK-060	S-033012-AK-113	S-033012-AK-112	S-032212-AK-062	S-032212-AK-064
Sample Date:	3/20/2012	3/20/2012	3/20/2012	3/20/2012	3/30/2012	3/22/2012	3/22/2012	3/22/2012	3/22/2012	3/30/2012	3/30/2012	3/22/2012	3/22/2012
Sample Depth:	(20-22) ft BGS	(35-37) ft BGS	(5-10) ft BGS	(20-22) ft BGS	(4-) ft BGS	(11-13) ft BGS	(30-34) ft BGS	(10-12) ft BGS	(30-32) ft BGS	(16-18) ft BGS	(15-17) ft BGS	(32-34) ft BGS	(5-7) ft BGS
<b>Parameters</b>		<b>Units</b>											
<b>Herbicides</b>													
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.02 U	0.03 U	0.02 U/0.02 U	0.02 U	0.03	0.3 U	0.02 U	0.02 U	0.03 U	0.04	0.02 U	0.02 U
Pentachlorophenol	mg/kg	0.02 U	0.03 U	0.02 U/0.02 U	0.02 U	1	31	1.9	0.02 U	0.48	1.5	0.02 U	0.43
<b>Semi-volatile Organic Compounds</b>													
2,3,4,5-Tetrachlorophenol	mg/kg	2.3 U	2.8 U	2.4 U/2.4 U	2.2 U	2.5 U	2.5 U	2.4 U	2.7 U	2.2 U	2.2 U	2.1 U	2.4 U
2,3,4,6-Tetrachlorophenol	mg/kg	2.3 U	2.8 U	2.4 U/2.4 U	2.2 U	2.5 U	4.7	2.5 U	2.4 U	2.7 U	2.2 U	2.1 U	2.4 U
2,4,5-Trichlorophenol	mg/kg	0.6 U	0.7 U	0.6 U/0.6 U	0.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.7 U	0.6 U	0.5 U	0.6 U
2,4,6-Trichlorophenol	mg/kg	0.6 U	0.7 U	0.6 U/0.6 U	0.5 U	0.6 U	0.6 U	2.4	0.6 U	0.7 U	0.6 U	0.5 U	0.6 U
2,4-Dichlorophenol	mg/kg	0.6 U	0.7 U	0.6 U/0.6 U	0.5 U	0.6 U	0.6 U	1.5	0.6 U	0.7 U	0.6	0.5 U	0.6 U
2,5-Dichlorophenol	mg/kg	1.1 U	1.4 U	1.2 U/1.2 U	1.1 U	1.3 U	1.3 U	1.2 U	1.2 U	1.4 U	1.1 U	1.1 U	1.2 U
2,6-Dichlorophenol	mg/kg	0.6 U	0.7 U	0.6 U/0.6 U	0.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.7 U	0.6 U	0.5 U	0.6 U
2-Chlorophenol	mg/kg	0.6 U	0.7 U	0.6 U/0.6 U	0.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.7 U	0.6 U	0.5 U	0.6 U
3/4-Chlorophenol	mg/kg	2.3 U	2.8 U	2.4 U/2.4 U	2.2 U	2.5 U	2.5 U	2.4 U	2.7 U	2.2 U	2.2 U	2.1 U	2.4 U
alpha-BHC	mg/kg	0.02 U	0.03 U	0.02 U/0.02 U	0.02 U	3 U	0.2	0.06 U	0.02 U	0.03 U	0.76 J	0.02 U	0.02 U
beta-BHC	mg/kg	0.02 U	0.03 U	0.1 J/0.03 J	0.02 U	7	0.1	0.06 U	0.02 U	0.03 U	0.2 J	0.02 U	0.02 U
delta-BHC	mg/kg	0.02 U	0.03 U	0.02 U/0.02 U	0.02 U	3 U	0.05 U	0.06 U	0.02 U	0.03 U	0.1 U	0.02 U	0.02 U
gamma-BHC (lindane)	mg/kg	0.02 U	0.03 U	0.02 U/0.02 U	0.02 U	3 U	0.05 U	0.06 U	0.02 U	0.03 U	0.2 J	0.02 U	0.02 U
Hexachlorobenzene	mg/kg	0.02 U	0.03 U	0.02 U/0.02 U	0.02 U	39	1.1	0.08 J	0.02 U	0.03 U	5.0 J	0.02 U	0.04
Hexachlorobutadiene	mg/kg	0.02 U	0.04	0.02 U/0.02 U	0.02 U	3 U	0.38	0.54 J	0.02 U	0.36	2.9 J	0.02 U	0.06
Hexachloroethane	mg/kg	0.02 U	0.03 U	0.02 U/0.02 U	0.02 U	3 U	0.2	1.2 J	0.02 U	0.08	2.3 J	0.02 U	0.03
<b>Volatile Organic Compounds</b>													
1,1,1-Trichloroethane	mg/kg	0.03 U	0.21	0.1 U/0.1 U	0.03 U	0.066	0.09	0.18	0.02 U	0.27	0.03 U	0.03 U	0.04
1,2-Dichloroethane	mg/kg	0.03 U	0.03 U	0.1 U/0.1 U	0.03 U	0.03 U	0.06 U	0.03 U	0.04	0.1	0.03 U	0.03 U	0.03 U
1,2-Dichloropropane	mg/kg	0.03 U	0.03 U	0.68/0.62	0.22	0.03 U	0.06 U	0.03 U	0.02 U	0.07 U	0.03 U	0.03 U	0.03 U
Benzene	mg/kg	0.03 U	0.03 U	0.1 U/0.1 U	0.03 U	0.03 U	0.06 U	0.03 U	0.02 U	0.07 U	0.03 U	0.03 U	0.03 U
Carbon tetrachloride	mg/kg	0.03 U	5.06	1.4/1.4	0.088	1.25	1.1	3.76	1.35	5.3	0.702	0.03	0.559
Chloroform (Trichloromethane)	mg/kg	0.12	3.84	10.5/10.4	0.693	0.915	1.2	0.734 J	1.09	2.06	0.15	0.057	0.16
Chloromethane (Methyl chloride)	mg/kg	0.03 U	0.03 U	0.1 U/0.1 U	0.03 U	0.03 U	0.06 U	0.03 U	0.02 U	0.07 U	0.04	0.03 U	0.03 U
Methylene chloride	mg/kg	0.04 U	0.06 U	0.1 U/0.1 U	0.03 U	0.03 U	0.09	0.072	0.07	0.32	0.03 U	0.03 U	0.03
Tetrachloroethene	mg/kg	0.03	3.82	1.1/1.1	0.23	4.42	6.17	1.84	1.23	4.91	3.14	0.04	1.4
Trichloroethene	mg/kg	0.03 U	0.15	0.1 U/0.1 U	0.03 U	0.05	0.09	0.3	0.04	0.29	0.03 U	0.03 U	0.03 U
Vinyl chloride	mg/kg	0.03 U	0.03 U	0.1 U/0.1 U	0.03 U	0.03 U	0.06 U	0.03 U	0.02 U	0.07 U	0.03 U	0.03 U	0.03 U
<b>General Chemistry</b>													
Chloride	mg/kg	41	152	360/373	138	1460	1740	960	730	610	86	23	54
													406

Notes:

U Not Detected.

J Estimated Value

x/x Sample result/Duplicate result

Table A.1

**Summary of Soil Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	CM-43	CM-44	CM-44	CM-45	CM-45	CM-46	CM-46	CM-47	CM-47	CM-48	CM-48	CM-49	CM-49
Sample ID:	S-032212-AK-063	S-032312-AK-066	S-032312-AK-065	S-032312-AK-068	S-032312-AK-067	S-032312-AK-070	S-032312-AK-069	S-032612-AK-072	S-032612-AK-071	S-032612-AK-075	S-032612-AK-074	S-032712-AK-077	S-032712-AK-076
Sample Date:	3/22/2012	3/23/2012	3/23/2012	3/23/2012	3/23/2012	3/23/2012	3/23/2012	3/26/2012	3/26/2012	3/26/2012	3/26/2012	3/27/2012	3/27/2012
Sample Depth:	(35-37) ft BGS	(5-7) ft BGS	(29-31) ft BGS	(10-12) ft BGS	(30-32) ft BGS	(17-19) ft BGS	(30-32) ft BGS	(5-9) ft BGS	(30-32) ft BGS	(5-7) ft BGS	(30-32) ft BGS	(25-27) ft BGS	(30-32) ft BGS
<b>Parameters</b>													
<b>Units</b>													
<b>Herbicides</b>													
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.03 U	0.02 U	0.03	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U/0.02 U	0.03 U	0.02 U	0.02 U	0.02 U
Pentachlorophenol	mg/kg	1.4	0.02 U	4	0.02 U	0.1	0.02 U	0.03 U	0.02 U/0.02 U	0.23	0.02 U	1.9	0.02 U
<b>Semi-volatile Organic Compounds</b>													
2,3,4,5-Tetrachlorophenol	mg/kg	2.5 U	2.4 U	2.2 U	2.3 U	2.4 U	2.2 U	2.8 U	2.3 U/2.3 U	2.8 U	2.4 U	2.5 U	2.1 U
2,3,4,6-Tetrachlorophenol	mg/kg	2.5 U	2.4 U	2.2 U	2.3 U	2.4 U	2.2 U	2.8 U	2.3 U/2.3 U	2.8 U	2.4 U	2.5 U	2.1 U
2,4,5-Trichlorophenol	mg/kg	0.6 U	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U	0.7 U	0.6 U/0.6 U	0.7 U	0.6 U	0.6 U	0.5 U
2,4,6-Trichlorophenol	mg/kg	0.6 U	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U	0.7 U	0.6 U/0.6 U	0.7 U	0.6 U	0.6 U	0.5 U
2,4-Dichlorophenol	mg/kg	0.6 U	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U	0.7 U	0.6 U/0.6 U	0.7 U	0.6 U	0.6 U	0.6 U
2,5-Dichlorophenol	mg/kg	1.3 U	1.2 U	1.1 U	1.2 U	1.2 U	1.1 U	1.4 U	1.1 U/1.1 U	1.4 U	1.2 U	1.2 U	1.1 U
2,6-Dichlorophenol	mg/kg	0.6 U	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U	0.7 U	0.6 U/0.6 U	0.7 U	0.6 U	0.6 U	0.5 U
2-Chlorophenol	mg/kg	0.6 U	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U	0.7 U	0.6 U/0.6 U	0.7 U	0.6 U	0.6 U	0.5 U
3/4-Chlorophenol	mg/kg	2.5 U	2.4 U	2.2 U	2.3 U	2.4 U	2.2 U	2.8 U	2.3 U/2.3 U	2.8 U	2.4 U	2.5 U	2.1 U
alpha-BHC	mg/kg	0.03 U	0.02 U	0.09 J	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U/0.2 U	6 U	0.04 U	200 U	0.02 U
beta-BHC	mg/kg	0.03 U	0.02 U	0.03 U	0.02 U/0.2 U	6 U	0.04 U	200 U	0.02 U				
delta-BHC	mg/kg	0.03 U	0.02 U	0.03 U	0.02 U/0.2 U	6 U	0.04 U	200 U	0.02 U				
gamma-BHC (lindane)	mg/kg	0.03 U	0.02 U	0.03 U	0.02 U/0.2 U	6 U	0.04 U	200 U	0.02 U				
Hexachlorobenzene	mg/kg	0.03 U	0.02 U	0.03 U	0.05 J/4.9 J	6 U	0.06 J	200 U	0.42 J				
Hexachlorobutadiene	mg/kg	0.03 U	0.06	0.52 J	0.02 U	0.26	0.02 U	0.03 U	0.04 J/0.3 J	130	0.74	4600	0.25
Hexachloroethane	mg/kg	0.03 U	0.02 U	0.19 J	0.02 U	0.04	0.02 U	0.03 U	0.02 U/0.2 U	7	0.1	400	0.02 U
<b>Volatile Organic Compounds</b>													
1,1,1-Trichloroethane	mg/kg	4.2	0.04	0.03 U	0.072	0.37	0.05	0.05	0.05/0.04	3 U	0.02 U	0.03 U	0.03 U
1,2-Dichloroethane	mg/kg	1.1	0.02 U	0.05	0.02 U	0.2	0.05	0.03 U	0.02 U/0.02 U	3 U	0.02 U	0.03 U	0.03 U
1,2-Dichloropropane	mg/kg	0.2 U	0.02 U	0.03 U	0.02 U	0.1 U	0.04 U	0.03 U	0.02 U/0.02 U	3 U	0.02 U	0.03 U	0.03 U
Benzene	mg/kg	0.2 U	0.02 U	0.03 U	0.02 U	0.1 U	0.04 U	0.03 U	0.02 U/0.02 U	3 U	0.02 U	0.03 U	0.03 U
Carbon tetrachloride	mg/kg	10.9	1.11	0.36	1.2	7.82	2.83	1.1	1.26/0.814	81.2	1.72	0.54	0.03
Chloroform (Trichloromethane)	mg/kg	6.77	1.82	0.643	1.29	5.52	1.46	1.64	1.24/0.907	7	1.73	0.6	0.14
Chloromethane (Methyl chloride)	mg/kg	0.2 U	0.02 U	0.03 U	0.02 U	0.1 U	0.04 U	0.03 U	0.02 U/0.02 U	3 U	0.02 U	0.03 U	0.03 U
Methylene chloride	mg/kg	1.4	0.02 U	0.13	0.02 U	0.26	0.04 U	0.03 U	0.02 U/0.02 U	3 U	0.02 U	0.03 U	0.03 U
Tetrachloroethene	mg/kg	28.8	2.09	1.07	1.9	9.46	2.56	2.56	2.5/1.91	196	1.29	0.22	0.087
Trichloroethene	mg/kg	0.8	0.05	0.056	0.06	0.28	0.06	0.07	0.27/0.19	3 U	0.14	0.03 U	0.03 U
Vinyl chloride	mg/kg	0.2 U	0.02 U	0.03 U	0.02 U	0.1 U	0.04 U	0.03 U	0.02 U/0.02 U	3 U	0.02 U	0.03 U	0.03 U
<b>General Chemistry</b>													
Chloride	mg/kg	63	1430	740	300	1300	780	1600	640/750	1300	447	336	164
													313

Notes:

U Not Detected.

J Estimated Value

x/x Sample result/Duplicate result

Table A.1

**Summary of Soil Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	CM-50	CM-50	CM-51	CM-51	CM-52	CM-52	CM-53	CM-53	CM-54	CM-54	CM-55	CM-55	CM-56
Sample ID:	S-032712-AK-079	S-032712-AK-078	S-032712-AK-081	S-032712-AK-080	S-032712-AK-083	S-032712-AK-082	S-032812-AK-086	S-032812-AK-085	S-032812-AK-088	S-032812-AK-087	S-032812-AK-090	S-032812-AK-089	S-032812-AK-092
Sample Date:	3/27/2012	3/27/2012	3/27/2012	3/27/2012	3/27/2012	3/27/2012	3/28/2012	3/28/2012	3/28/2012	3/28/2012	3/28/2012	3/28/2012	3/28/2012
Sample Depth:	(5-7) ft BGS	(30-32) ft BGS	(12-14) ft BGS	(32.5-34.5) ft BGS	(5-7) ft BGS	(31.5-33.5) ft BGS	(5-10) ft BGS	(32.5-35) ft BGS	(5-7) ft BGS	(31-33) ft BGS	(5-7) ft BGS	(32.5-34) ft BGS	(5-7) ft BGS
<b>Parameters</b>		<b>Units</b>											
<b>Herbicides</b>													
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U
Pentachlorophenol	mg/kg	0.02 U	0.05	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.27	0.02 U
<b>Semi-volatile Organic Compounds</b>													
2,3,4,5-Tetrachlorophenol	mg/kg	2.4 U	2.6 U	2.4 U	2.2 U	2.4 U	2.2 U	2.3 U	2.3 U	2.4 U	2.3 U	2.5 U	2.3 U
2,3,4,6-Tetrachlorophenol	mg/kg	2.4 U	2.6 U	2.4 U	2.2 U	2.4 U	2.2 U	2.3 U	2.3 U	2.4 U	2.3 U	2.5 U	2.3 U
2,4,5-Trichlorophenol	mg/kg	0.6 U	0.7 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
2,4,6-Trichlorophenol	mg/kg	0.6 U	0.7 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
2,4-Dichlorophenol	mg/kg	0.6 U	0.7 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
2,5-Dichlorophenol	mg/kg	1.2 U	1.3 U	1.2 U	1.1 U	1.2 U	1.1 U	1.2 U	1.1 U	1.2 U	1.2 U	1.3 U	1.1 U
2,6-Dichlorophenol	mg/kg	0.6 U	0.7 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
2-Chlorophenol	mg/kg	0.6 U	0.7 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
3/4-Chlorophenol	mg/kg	2.4 U	2.6 U	2.4 U	2.2 U	2.4 U	2.2 U	2.3 U	2.3 U	2.4 U	2.3 U	2.5 U	2.3 U
alpha-BHC	mg/kg	0.02 U	0.5 U	0.09 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	100 U
beta-BHC	mg/kg	0.02 U	0.5 U	0.09 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	100 U
delta-BHC	mg/kg	0.02 U	0.5 U	0.09 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	100 U
gamma-BHC (lindane)	mg/kg	0.02 U	0.5 U	0.09 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	100 U
Hexachlorobenzene	mg/kg	0.12 J	0.5 U	1.1 J	0.1 J	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.36 J	100 U
Hexachlorobutadiene	mg/kg	0.06	6.3	0.1	0.62	0.03	0.02 U	0.25	0.07	0.54	0.02 U	0.36	2200
Hexachloroethane	mg/kg	0.04	0.5 U	0.09 U	0.1 U	0.02 U	0.02 U	0.04	0.02 U	0.06	0.02 U	0.06	200
<b>Volatile Organic Compounds</b>													
1,1,1-Trichloroethane	mg/kg	0.06	0.05	0.02 U	2 U	0.02 U	0.03 U	0.04 U	0.02 U	0.03 U	0.03 U	0.02 U	0.9 U
1,2-Dichlorethane	mg/kg	0.03	0.03 U	0.02 U	2 U	0.02 U	0.03 U	0.04 U	0.02 U	0.03 U	0.03 U	0.085	0.9 U
1,2-Dichloropropane	mg/kg	0.02 U	0.03 U	0.02 U	2 U	0.02 U	0.03 U	0.04 U	0.02 U	0.03 U	0.03 U	0.02 U	0.9 U
Benzene	mg/kg	0.02 U	0.03 U	0.02 U	2 U	0.02 U	0.03 U	0.04 U	0.02 U	0.03 U	0.03 U	0.02 U	0.9 U
Carbon tetrachloride	mg/kg	1.07	0.872	0.34	26	1.96	0.04	3.71	0.02 U	0.827	0.43	4.15	38.7
Chloroform (Trichloromethane)	mg/kg	1.79	0.948	0.48	2 U	0.746	0.5	2.77	0.787	1.71	0.3	1.87	1
Chloromethane (Methyl chloride)	mg/kg	0.02 U	0.03 U	0.02 U	2 U	0.02 U	0.03 U	0.04 U	0.02 U	0.03 U	0.03 U	0.02 U	0.9 U
Methylene chloride	mg/kg	0.02 U	0.03 U	0.02 U	2 U	0.02 U	0.03 U	0.04 U	0.02 U	0.03 U	0.03 U	0.05 U	0.9 U
Tetrachloroethene	mg/kg	1.09	0.49	0.46	118	1.67	1.23	4.41	0.652	2.4	0.23	3.08	56.1
Trichloroethene	mg/kg	0.05	0.03 U	0.02 U	2 U	0.065	0.03	0.1	0.03	0.15	0.03 U	0.17	0.9 U
Vinyl chloride	mg/kg	0.02 U	0.03 U	0.02 U	2 U	0.02 U	0.03 U	0.04 U	0.02 U	0.03 U	0.02 U	0.9 U	0.02 U
<b>General Chemistry</b>													
Chloride	mg/kg	419	203	406	1000	525	212	2340	530	1300	511	1460	880
													1250

Notes:

U Not Detected.

J Estimated Value

x/x Sample result/Duplicate result

Table A.1

**Summary of Soil Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	CM-56	CM-57	CM-57	CM-58	CM-58	CM-59	CM-59	CM-60	CM-60	CM-61	CM-61	CM-62	CM-62
Sample ID:	S-032812-AK-091	S-032812-AK-093	S-032812-AK-094	S-032912-AK-096	S-032912-AK-095	S-032912-AK-098	S-032912-AK-097	S-032912-AK-100	S-032912-AK-099	S-032912-AK-102	S-032912-AK-101	S-032912-AK-103	S-032912-AK-104
Sample Date:	3/28/2012	3/28/2012	3/28/2012	3/29/2012	3/29/2012	3/29/2012	3/29/2012	3/29/2012	3/29/2012	3/29/2012	3/29/2012	3/29/2012	3/29/2012
Sample Depth:	(30-32) ft BGS	(5-7) ft BGS	(30-33) ft BGS	(5-7) ft BGS	(31-33) ft BGS	(5-7) ft BGS	(31-33) ft BGS	(5-7) ft BGS	(30-32) ft BGS	(5-7) ft BGS	(30-32) ft BGS	(5-7) ft BGS	(30-32) ft BGS
Parameters	Units												
<b>Herbicides</b>													
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.03 U	0.02 U	0.29	0.02 U								
Pentachlorophenol	mg/kg	0.03 U	0.05	0.59	0.02 U	0.07	0.02 U						
<b>Semi-volatile Organic Compounds</b>													
2,3,4,5-Tetrachlorophenol	mg/kg	2.5 U	2.4 U	2.3 U	2.3 U	2.2 U	2.4 U	2.5 U	2.4 U	2.2 U	2.4 U	2.1 U	2.4 U
2,3,4,6-Tetrachlorophenol	mg/kg	2.5 U	2.4 U	2.3 U	2.3 U	2.2 U	2.4 U	2.5 U	2.4 U	2.2 U	2.4 U	2.1 U	2.4 U
2,4,5-Trichlorophenol	mg/kg	0.6 U	0.5 U	0.6 U									
2,4,6-Trichlorophenol	mg/kg	0.6 U	0.5 U	0.6 U									
2,4-Dichlorophenol	mg/kg	0.6 U											
2,5-Dichlorophenol	mg/kg	1.3 U	1.2 U	1.2 U	1.2 U	1.1 U	1.2 U	1.2 U	1.2 U	1.1 U	1.2 U	1.0 U	1.2 U
2,6-Dichlorophenol	mg/kg	0.6 U	0.5 U	0.6 U									
2-Chlorophenol	mg/kg	0.6 U	0.5 U	0.6 U									
3/4-Chlorophenol	mg/kg	2.5 U	2.4 U	2.3 U	2.3 U	2.2 U	2.4 U	2.5 U	2.4 U	2.2 U	2.4 U	2.1 U	2.4 U
alpha-BHC	mg/kg	0.03 U	0.02 U	50 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
beta-BHC	mg/kg	0.03 U	0.02 U	50 U	0.02 U	0.03	0.02 U	0.02 U	0.22	0.02 U	0.02 U	0.02 U	0.07
delta-BHC	mg/kg	0.03 U	0.02 U	50 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
gamma-BHC (lindane)	mg/kg	0.03 U	0.02 U	50 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Hexachlorobenzene	mg/kg	0.14 J	0.02 U	50 U	0.02	12	0.24	0.22	0.03	0.67	0.02 U	0.23	0.08
Hexachlorobutadiene	mg/kg	0.03 U	0.12	1000	0.14	0.04	0.08	0.02 U	0.06	0.02 U	0.02 U	0.02 U	0.02 U
Hexachloroethane	mg/kg	0.03 U	0.07	200	0.02 U								
<b>Volatile Organic Compounds</b>													
1,1,1-Trichloroethane	mg/kg	0.03 U	0.02 U	5 U	0.02 U	0.03 U	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.03 U	0.03 U
1,2-Dichloroethane	mg/kg	0.03 U	0.49	5 U	0.02 U	0.03 U	0.02 U	0.03 U	0.03	0.02 U	0.02 U	0.03 U	0.03 U
1,2-Dichloropropane	mg/kg	0.03 U	0.02 U	5 U	0.02 U	0.03 U	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.03 U	0.03 U
Benzene	mg/kg	0.03 U	0.02 U	5 U	0.02 U	0.03 U	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.03 U	0.03 U
Carbon tetrachloride	mg/kg	0.51	1.6	21	1.05	0.03 U	0.37	0.14	0.26	0.091	0.14	0.11	0.03 U
Chloroform (Trichloromethane)	mg/kg	0.15	2.31	5 U	0.55	0.48	0.55	0.05	0.15	0.03	0.05	0.04	0.03 U
Chloromethane (Methyl chloride)	mg/kg	0.03 U	0.02 U	5 U	0.02 U	0.03 U	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.03 U	0.03 U
Methylene chloride	mg/kg	0.03 U	0.15 U	5 U	0.02 U	0.03 U	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.03 U	0.03 U
Tetrachloroethene	mg/kg	0.671	2.05	378	1.06	1.53	0.36	0.068	0.18	0.17	0.58	0.15	0.096
Trichloroethene	mg/kg	0.03 U	0.07	5 U	0.04	0.04	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.03 U	0.03 U
Vinyl chloride	mg/kg	0.03 U	0.02 U	5 U	0.02 U	0.03 U	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.03 U	0.03 U
<b>General Chemistry</b>													
Chloride	mg/kg	164	1000	359	1000	312	810	344	4660	15	1200	35	2250
													19

Notes:

U Not Detected.

J Estimated Value

x/x Sample result/Duplicate result

Table A.1

**Summary of Soil Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	CM-63	CM-63	CM-64	CM-64	CM-65	CM-65	CM-66	CM-66	CM-67	CM-67	CM-68	CM-68	CM-69	
Sample ID:	S-033012-AK-108	S-033012-AK-106	S-033012-AK-110	S-033012-AK-109	S-040312-AK-123	S-040312-AK-122	S-040312-AK-126	S-040312-AK-124	S-040312-AK-128	S-040312-AK-127	S-072313-AK-008	S-072313-AK-007	S-072413-AK-011	
Sample Date:	3/30/2012	3/30/2012	3/30/2012	3/30/2012	4/3/2012	4/3/2012	4/3/2012	4/3/2012	4/3/2012	4/3/2012	7/23/2013	7/23/2013	7/24/2013	
Sample Depth:	(5-7) ft BGS	(31.5-33.5) ft BGS	(10-15) ft BGS	(30-32) ft BGS	(5-7) ft BGS	(30-33) ft BGS	(10-12) ft BGS	(30-34) ft BGS	(5-7) ft BGS	(29-31) ft BGS	(10-12) ft BGS	(32-34) ft BGS	(5-7) ft BGS	
<b>Parameters</b>														
<b>Units</b>														
<b>Herbicides</b>														
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.02 U	0.03 U/0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.03 U/0.02 U	0.02 U	0.02 U	3 U	0.02 U	0.02 U/0.02 U
Pentachlorophenol	mg/kg	0.02 U	0.03/0.02 U	0.02 U	0.08	0.02 U	0.03	0.02 U	0.03/0.06	0.02 U	0.02 U	27	0.8	0.02 U/0.02 U
<b>Semi-volatile Organic Compounds</b>														
2,3,4,5-Tetrachlorophenol	mg/kg	2.4 U	2.6 U/2.3 U	2.4 U	2.5 U	2.5 U	2.8 U	2.4 U	2.7 U/2.3 U	2.4 U	2.4 U	32	2.4 U	2.4 U/2.4 U
2,3,4,6-Tetrachlorophenol	mg/kg	2.4 U	2.6 U/2.3 U	2.4 U	2.5 U	2.5 U	2.8 U	2.4 U	2.7 U/2.3 U	2.4 U	2.4 U	32	2.4 U	2.4 U/2.4 U
2,4,5-Trichlorophenol	mg/kg	0.6 U	0.7 U/0.6 U	0.6 U	0.6 U	0.6 U	0.7 U	0.6 U	0.7 U/0.6 U	0.6 U	0.6 U	3 U	0.6 U	0.6 U/0.6 U
2,4,6-Trichlorophenol	mg/kg	0.6 U	0.7 U/0.6 U	0.6 U	0.6 U	0.6 U	0.7 U	0.6 U	0.7 U/0.6 U	0.6 U	0.6 U	12	16	0.6 U/0.6 U
2,4-Dichlorophenol	mg/kg	0.6 U	0.7 U/0.6 U	0.6 U	0.6 U	0.6 U	0.7 U	0.6 U	0.7 U/0.6 U	0.6 U	0.6 U	3 U	8.8	0.6 U/0.6 U
2,5-Dichlorophenol	mg/kg	1.2 U	1.3 U/1.1 U	1.2 U	1.2 U	1.2 U	1.4 U	1.2 U	1.4 U/1.2 U	1.2 U	1.2 U	5.1 U	1.2 U	1.2 U/1.2 U
2,6-Dichlorophenol	mg/kg	0.6 U	0.7 U/0.6 U	0.6 U	0.6 U	0.6 U	0.7 U	0.6 U	0.7 U/0.6 U	0.6 U	0.6 U	3 U	1.3	0.6 U/0.6 U
2-Chlorophenol	mg/kg	0.6 U	0.7 U/0.6 U	0.6 U	0.6 U	0.6 U	0.7 U	0.6 U	0.7 U/0.6 U	0.6 U	0.6 U	3 U	0.6 U	0.6 U/0.6 U
3,4-Chlorophenol	mg/kg	2.4 U	2.6 U/2.3 U	2.4 U	2.5 U	2.5 U	2.8 U	2.4 U	2.7 U/2.3 U	2.4 U	2.4 U	10 U	2.4 U	2.4 U/2.4 U
alpha-BHC	mg/kg	0.02 U	10 U/0.09 U	0.02 U	10 U	0.02 U	0.03 U	0.02 U	0.03 U/0.02 U	0.02 U	0.02 U	0.3 U	R	0.02 U/0.02 U
beta-BHC	mg/kg	0.02 U	10 U/0.09 U	0.02 U	10 U	0.05	0.03	0.02 U	0.03 U/0.02 U	0.06	0.02 U	0.3 J	R	0.02 U/0.02 U
delta-BHC	mg/kg	0.02 U	10 U/0.09 U	0.02 U	10 U	0.02 U	0.03 U	0.02 U	0.03 U/0.02 U	0.02 U	0.02 U	0.3 U	R	0.02 U/0.02 U
gamma-BHC (lindane)	mg/kg	0.02 U	10 U/0.09 U	0.02 U	10 U	0.02 U	0.03 U	0.02 U	0.03 U/0.02 U	0.02 U	0.02 U	0.4 J	R	0.02 U/0.02 U
Hexachlorobenzene	mg/kg	0.31	10 U/1.7	0.37	40	0.03	12	0.02 U	0.03 U/0.04	0.03	0.02 U	1	R	0.02 U/0.02 U
Hexachlorobutadiene	mg/kg	0.24	660 J/0.68 J	23	1300	0.14	1100	0.02 U	0.5/0.1	0.03	0.24	0.3 U	0.06 J	0.02 U/0.02 U
Hexachloroethane	mg/kg	0.02 U	40 J/0.09 UJ	2	60	0.02 U	69	0.02 U	0.06/0.02 U	0.02 U	0.02 U	0.3 U	0.24 J	0.02 U/0.02 U
<b>Volatile Organic Compounds</b>														
1,1,1-Trichloroethane	mg/kg	0.02 U	0.5 U/0.5 U	3 U	10	0.02 U	0.5 U	0.05	0.03 U/0.02 U	0.02 U	0.03 U	0.2 U	0.5	0.03 U/0.03 U
1,2-Dichloroethane	mg/kg	0.02 U	0.5 U/0.5 U	3 U	10 U	0.02 U	0.5 U	0.02 U	0.03 U/0.02 U	0.02 U	0.03 U	0.2 U	0.3 U	0.26/0.33
1,2-Dichloropropane	mg/kg	0.02 U	0.5 U/0.5 U	3 U	10 U	0.02 U	0.5 U	0.02 U	0.03 U/0.02 U	0.02 U	0.03 U	0.2 U	0.3 U	0.03 U/0.03 U
Benzene	mg/kg	0.02 U	0.5 U/0.5 U	3 U	10 U	0.02 U	0.5 U	0.02 U	0.03 U/0.02 U	0.02 U	0.03 U	0.2 U	0.3 U	0.03 U/0.03 U
Carbon tetrachloride	mg/kg	0.47	7.3/8.7	48	661	0.05	30.2	0.858	0.24/0.05	0.1	0.04	0.76	27.1	0.05 J/0.3 J
Chloroform (Trichloromethane)	mg/kg	1.37	0.5 U/0.5 U	6.4	25	0.13	4.7	1.72	0.55/0.28	0.19	0.074	1.4	4.1	0.651/1.7
Chloromethane (Methyl chloride)	mg/kg	0.02 U	0.5 U/0.5 U	3 U	10 U	0.02 U	0.5 U	0.02 U	0.03 U/0.02 U	0.02 U	0.03 U	0.2 U	0.3 U	0.03 U/0.03 U
Methylene chloride	mg/kg	0.02 U	0.5 U/0.5 U	3 U	10 U	0.02 U	0.5 U	0.02 U	0.03 U/0.02 U	0.02 U	0.03 U	0.3	0.63	0.03 U/0.07
Tetrachloroethene	mg/kg	0.18	33.3/33.9	185	996	0.19	60	0.991	0.32/0.11	0.3	0.05	12.3	28.2	0.46 J/1.71 J
Trichloroethene	mg/kg	0.02 U	0.5 U/0.5 U	3 U	10 U	0.02 U	0.5 U	0.06	0.03 U/0.02 U	0.02 U	0.03 U	0.2 U	0.89	0.03 U/0.075
Vinyl chloride	mg/kg	0.02 U	0.5 U/0.5 U	3 U	10 U	0.02 U	0.5 U	0.02 U	0.03 U/0.02 U	0.02 U	0.03 U	0.2 U	0.3 U	0.03 U/0.03 U
<b>General Chemistry</b>														
Chloride	mg/kg	1730	990/510	590	390	65	294	650	282/54	19	67	308	358	339/250

Notes:

U Not Detected.

J Estimated Value

x/x Sample result/Duplicate result

Table A.1

**Summary of Soil Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	CM-69	CM-69	CM-70	CM-70	DB-01	DB-03	DB-04	DB-04	DB-05	DB-05	DB-06	DB-08
Sample ID:	S-072413-AK-013	S-072413-AK-010	S-072413-AK-015	S-072413-AK-014	S-08202013-AK-01	S-08222013-AK-08	S-08232013-AK-11	S-08232013-AK-12	S-08242013-AK-14	S-08242013-AK-15	S-09042013-AK-18	S-09062013-AK-24
Sample Date:	7/24/2013	7/24/2013	7/24/2013	7/24/2013	8/20/2013	8/22/2013	8/23/2013	8/23/2013	8/24/2013	8/24/2013	9/4/2013	9/6/2013
Sample Depth:	(20-22) ft BGS	(30-32) ft BGS	(10-12) ft BGS	(30-32) ft BGS	(49.5-50) ft BGS	(48.5-49) ft BGS	(42-42.5) ft BGS	(49.5-50) ft BGS	(33-33.5) ft BGS	(49.5-50) ft BGS	(46.5-47) ft BGS	(41.5-42) ft BGS
Parameters	Units											
<b>Herbicides</b>												
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.71	0.02 U	0.02	0.02 U	0.02 U	0.02 U	0.03 U
Pentachlorophenol	mg/kg	0.02 U	0.11	0.02 U	0.02	0.4	0.64	0.05	0.5	0.03	7.9	1
<b>Semi-volatile Organic Compounds</b>												
2,3,4,5-Tetrachlorophenol	mg/kg	2.3 U	2.1 U	2.3 U	2.1 U	2.3 U	2.4 U	2.5 U	2.1 U	2.5 U	2.3 U	2.4 U
2,3,4,6-Tetrachlorophenol	mg/kg	2.3 U	2.1 U	2.3 U	2.1 U	2.3 U	2.4 U	2.5 U	2.1 U	2.5 U	2.3 U	2.4 U
2,4,5-Trichlorophenol	mg/kg	0.6 U	0.5 U	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U
2,4,6-Trichlorophenol	mg/kg	0.6 U	0.5 U	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U
2,4-Dichlorophenol	mg/kg	0.6 U	0.5 U	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U
2,5-Dichlorophenol	mg/kg	1.2 U	1.0 U	1.2 U	1.0 U	1.2 U	1.2 U	1.2 U	1.0 U	1.2 U	1.2 U	1.2 U
2,6-Dichlorophenol	mg/kg	0.6 U	0.5 U	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U
2-Chlorophenol	mg/kg	0.6 U	0.5 U	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U
3/4-Chlorophenol	mg/kg	2.3 U	2.1 U	2.3 U	2.1 U	2.3 U	2.4 U	2.5 U	2.1 U	2.5 U	2.3 U	2.4 U
alpha-BHC	mg/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.09 U	20 U	20 U	100 U	0.05 U	200 U	50 U
beta-BHC	mg/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.09 U	20 U	20 U	100 U	0.05 U	200 U	50 U
delta-BHC	mg/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.09 U	20 U	20 U	100 U	0.05 U	200 U	50 U
gamma-BHC (lindane)	mg/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.09 U	20 U	20 U	100 U	0.05 U	200 U	50 U
Hexachlorobenzene	mg/kg	0.02 U	0.03	0.02 U	0.24	0.09 U	20 U	20 U	100 U	0.05 U	200 U	50 U
Hexachlorobutadiene	mg/kg	0.02 U	1.1	0.02 U	0.02 U	1.3	410	280	1500	0.75	8300	3100
Hexachloroethane	mg/kg	0.02 U	0.16	0.02 U	0.04	0.09 U	40	20 U	100 U	0.2	400	100
<b>Volatile Organic Compounds</b>												
1,1,1-Trichloroethane	mg/kg	0.076	0.03	0.2 U	0.03 U	0.081	0.03 U	0.03 U	0.02 U	0.17	8	0.3 U
1,2-Dichloroethane	mg/kg	1.05	0.095	0.2 U	0.03 U	0.084	0.094	0.03 U	0.02 U	0.03 U	0.06	0.3 U
1,2-Dichloropropane	mg/kg	0.03 U	0.03 U	0.2 U	0.03 U	0.02 U	0.03 U	0.03 U	0.02 U	0.03 U	0.02 U	16.1
Benzene	mg/kg	0.03 U	0.03 U	0.2 U	0.03 U	0.02 U	0.03 U	0.03 U	0.02 U	0.03 U	0.02 U	0.03 U
Carbon tetrachloride	mg/kg	0.601	0.22	8.34	0.37	0.04	0.85	0.03 U	7.71	3.12	187	7.82
Chloroform (Trichloromethane)	mg/kg	2.07	0.37	30.5	2.51	2.34	6.91	1.73	0.817	2.32	12	4.8
Chloromethane (Methyl chloride)	mg/kg	0.03 U	0.03 U	0.2 U	0.03 U	0.02 U	0.03 U	0.02 U	0.03 U	0.02 U	0.02 U	0.03 U
Methylene chloride	mg/kg	0.709	0.32	0.2 U	0.626	1.01	0.48	0.069	0.02 U	0.03 U	0.12	0.3
Tetrachloroethene	mg/kg	2.02	1.11	0.5	0.1	1.98	7.35	18.8	7.92	3.62	762	51
Trichloroethene	mg/kg	0.063	0.04	0.2 U	0.03	0.04	0.079	0.34	0.066	0.11	2.64	0.4
Vinyl chloride	mg/kg	0.03 U	0.03 U	0.2 U	0.03 U	0.02 U	0.03 U	0.03 U	0.02 U	0.03 U	0.02 U	0.096
<b>General Chemistry</b>												
Chloride	mg/kg	442	89	34	241	640	710	660	172	379	58	174
												1200

Notes:

U Not Detected.

J Estimated Value

x/x Sample result/Duplicate result

Table A.1

**Summary of Soil Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	DB-09	IA-01	IA-02	IA-03	IA-04	IA-05	IA-06	IA-07	IA-08	IA-09	IA-09	IA-10	IA-10	IA-11	
Sample ID:	S-09062013-AK-28	S-083010-TK-173	S-083010-TK-174	S-083010-TK-175	S-083010-TK-176	S-083110-TK-177	S-083110-TK-178	S-083110-TK-179	S-083110-TK-180	S-090110-TK-181	S-090110-TK-182	S-090110-TK-183	S-090110-TK-184		
Sample Date:	9/6/2013	8/30/2010	8/30/2010	8/30/2010	8/30/2010	8/31/2010	8/31/2010	8/31/2010	8/31/2010	9/1/2010	9/1/2010	9/1/2010	9/1/2010		
Sample Depth:	(46-46.5) ft BGS	(20-22) ft BGS	(14-16) ft BGS	(14-16) ft BGS	(20-22) ft BGS	(26-28) ft BGS	(20-22) ft BGS	(22-24) ft BGS	(22-24) ft BGS	(2-4) ft BGS	(8-10) ft BGS	(20-22) ft BGS	(26-28) ft BGS		
<b>Parameters</b>		<b>Units</b>													
<b>Herbicides</b>															
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.38	0.02 U	0.02 U	0.05	0.03 U	0.02 U	0.31	0.02 U	2.6	0.1	0.02 U	0.02 U	0.02 U	
Pentachlorophenol	mg/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.04	0.05	0.02 U	0.2	0.19	0.02 U	0.02 U	0.02 U	
<b>Semi-volatile Organic Compounds</b>															
2,3,4,5-Tetrachlorophenol	mg/kg	2.5 U	2.1 U	2.3 U	2.3 U	2.6 U	2.1 U	2.1 U	2.1 U	2.6 U	2.4 U	2.1 U	2.1 U	2.1 U	
2,3,4,6-Tetrachlorophenol	mg/kg	2.5 U	2.1 U	2.3 U	2.3 U	2.6 U	2.1 U	2.1 U	2.2 U	2.6 U	2.4 U	2.1 U	2.1 U	2.1 U	
2,4,5-Trichlorophenol	mg/kg	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U	0.5 U	0.5 U	0.5 U	0.6 U	0.6 U	0.5 U	0.5 U	0.5 U	
2,4,6-Trichlorophenol	mg/kg	1.2	0.5 U	0.6 U	0.6 U	0.6 U	0.5 U	0.5 U	0.5 U	0.6 U	0.6 U	0.5 U	0.5 U	0.5 U	
2,4-Dichlorophenol	mg/kg	2.7	0.5 U	0.6 U	0.6 U	0.6 U	0.5 U	0.5 U	0.5 U	0.6 U	0.6 U	0.5 U	0.5 U	0.5 U	
2,5-Dichlorophenol	mg/kg	1.2 U	1.1 U	1.2 U	1.2 U	1.3 U	1.1 U	1.1 U	1.1 U	1.3 U	1.2 U	1.1 U	1.1 U	1.0 U	
2,6-Dichlorophenol	mg/kg	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U	0.5 U	0.5 U	0.5 U	0.6 U	0.6 U	0.5 U	0.5 U	0.5 U	
2-Chlorophenol	mg/kg	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U	0.5 U	0.5 U	0.5 U	0.6 U	0.6 U	0.5 U	0.5 U	0.5 U	
3/4-Chlorophenol	mg/kg	2.5 U	2.1 U	2.3 U	2.3 U	2.6 U	2.1 U	2.1 U	2.1 U	2.6 U	2.4 U	2.1 U	2.1 U	2.1 U	
alpha-BHC	mg/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.02 U	0.23	0.02 U	0.02 U	0.02 U	
beta-BHC	mg/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.02 U	0.27	0.02 U	0.02 U	0.02 U	
delta-BHC	mg/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.02 U	
gamma-BHC (lindane)	mg/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.02 U	
Hexachlorobenzene	mg/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.02 U	0.04	0.02 U	0.02 U	0.02 U	
Hexachlorobutadiene	mg/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.02 U	
Hexachloroethane	mg/kg	0.12	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.02 U	
<b>Volatile Organic Compounds</b>															
1,1,1-Trichloroethane	mg/kg	0.24	0.03 U	0.02 U	0.02 U	0.03 U	0.02 U	0.03 U	0.03 U	0.03 U					
1,2-Dichloroethane	mg/kg	0.924	0.03 U	0.02 U	0.02 U	0.03 U	0.06 J	0.02 U	0.03 U	0.03 U					
1,2-Dichloropropane	mg/kg	3.28	0.03 U	0.02 U	0.02 U	0.03 U	0.02 U	0.03 U	0.03 U						
Benzene	mg/kg	0.06	0.05 U	0.04 U	0.08 U	0.069 U	0.053 U	0.05 U	0.05 U	0.05 U	1.79 J	0.05 U	0.056 U	0.03 U	
Carbon tetrachloride	mg/kg	48	0.03 U	0.02 U	0.02 U	0.03 U	0.03 U	0.092	0.03 U	0.03	0.03 U	0.02 U	0.03 U	0.03 U	
Chloroform (Trichloromethane)	mg/kg	86.1	0.03 U	0.02 U	0.02 U	0.03 U	0.5	0.03 U	0.03 U	0.03 U					
Chloromethane (Methyl chloride)	mg/kg	0.03 U	0.03 U	0.02 U	0.02 U	0.03 U	0.02 U	0.03 U	0.03 U						
Methylene chloride	mg/kg	32	0.03 U	0.03 U	0.03 U	0.03 U	0.05 U	0.04 U	0.04 U	0.04 U	0.05 U	0.04 U	0.03 U	0.03 U	
Tetrachloroethene	mg/kg	7.1	0.03 U	0.37	0.05	0.03 U	0.03 U	0.2	0.03 U	0.03	0.03 U	0.18	0.03 U	0.03 U	
Trichloroethene	mg/kg	0.622	0.03 U	0.02 U	0.37	0.03 U	0.18 J	0.02 U	0.03 U	0.03 U					
Vinyl chloride	mg/kg	0.03 U	0.03 U	0.02 U	0.02 U	0.02 U	0.03 U	0.03 U	0.03 U	0.03 U	0.02 U	0.03 U	0.03 U	0.03 U	
<b>General Chemistry</b>															
Chloride	mg/kg	620	260	617	2570	540	2520	1600	2160	1200	4700	5300	410	96 J	

Notes:

U Not Detected.

J Estimated Value

x/x Sample result/Duplicate result

Table A.1

**Summary of Soil Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	IA-12	IA-13	IA-13	IA-14	IA-15	IA-16	IA-17	IA-18	IA-19	IA-20	IA-21	IA-22	IA-23
Sample ID:	S-090110-TK-185	S-090210-TK-188	S-090210-TK-189	S-090210-TK-190	S-090210-TK-191	S-090310-TK-192	S-090310-TK-193	S-090310-TK-194	S-090310-TK-195	S-090710-TK-196	S-090710-TK-197	S-090710-TK-198	S-090710-TK-199
Sample Date:	9/1/2010	9/2/2010	9/2/2010	9/2/2010	9/2/2010	9/3/2010	9/3/2010	9/3/2010	9/3/2010	9/7/2010	9/7/2010	9/7/2010	9/7/2010
Sample Depth:	(22-24) ft BGS	(4-6) ft BGS	(20-22) ft BGS	(14-16) ft BGS	(8-10) ft BGS	(20-22) ft BGS	(22-24) ft BGS	(24-26) ft BGS	(2-4) ft BGS	(24-26) ft BGS	(4-6) ft BGS	(10-12) ft BGS	(6-8) ft BGS
<b>Parameters</b>													
<b>Herbicides</b>													
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.03 U	0.02 U	0.02 U
Pentachlorophenol	mg/kg	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.63	0.02 U	0.03 U	0.02 U	0.02 U
<b>Semi-volatile Organic Compounds</b>													
2,3,4,5-Tetrachlorophenol	mg/kg	2.1 U/2.5 U	2.4 U	2.1 U	2.3 U	2.5 U	2.1 U	2.1 U	2.4 U	2.1 U	2.6 U	2.4 U	2.4 U
2,3,4,6-Tetrachlorophenol	mg/kg	2.1 U/2.5 U	2.4 U	2.1 U	2.3 U	2.5 U	2.1 U	2.1 U	2.4 U	2.1 U	2.6 U	2.4 U	2.4 U
2,4,5-Trichlorophenol	mg/kg	0.5 U/0.6 U	0.6 U	0.5 U	0.6 U	0.6 U	0.5 U	0.5 U	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U
2,4,6-Trichlorophenol	mg/kg	0.5 U/0.6 U	0.6 U	0.5 U	0.6 U	0.6 U	0.5 U	0.5 U	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U
2,4-Dichlorophenol	mg/kg	0.5 U/0.6 U	0.6 U	0.5 U	0.6 U	0.6 U	0.5 U	0.5 U	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U
2,5-Dichlorophenol	mg/kg	1.1 U/1.2 U	1.2 U	1.0 U	1.2 U	1.2 U	1.1 U	1.0 U	1.1 U	1.2 U	1.1 U	1.3 U	1.2 U
2,6-Dichlorophenol	mg/kg	0.5 U/0.6 U	0.6 U	0.5 U	0.6 U	0.6 U	0.5 U	0.5 U	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U
2-Chlorophenol	mg/kg	0.5 U/0.6 U	0.6 U	0.5 U	0.6 U	0.6 U	0.5 U	0.5 U	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U
3/4-Chlorophenol	mg/kg	2.1 U/2.5 U	2.4 U	2.1 U	2.3 U	2.5 U	2.1 U	2.1 U	2.4 U	2.1 U	2.6 U	2.4 U	2.4 U
alpha-BHC	mg/kg	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	10	0.02 U	0.03 U	0.02 U	0.02 U
beta-BHC	mg/kg	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	20	0.02 U	0.03 U	0.08	0.02 U
delta-BHC	mg/kg	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	5 U	0.02 U	0.03 U	0.02 U	0.02 U
gamma-BHC (lindane)	mg/kg	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	5 U	0.02 U	0.03 U	0.02 U	0.02 U
Hexachlorobenzene	mg/kg	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.31	0.02 U	0.12	0.02 U	5 U	0.02 U	0.03 U	0.02 U
Hexachlorobutadiene	mg/kg	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	5 U	0.02 U	0.03 U	0.02 U	0.02 U
Hexachloroethane	mg/kg	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	5 U	0.02 U	0.03 U	0.02 U	0.02 U
<b>Volatile Organic Compounds</b>													
1,1,1-Trichloroethane	mg/kg	0.03 U/0.03 U	0.02 U	0.03 U	0.02 U	0.02 U	0.03 U	0.03 U	0.02 U	0.03 U	0.1 U	0.02 U	0.02 U
1,2-Dichloroethane	mg/kg	0.03 U/0.03 U	0.02 U	0.03 U	0.02 U	0.02 U	0.03 U	0.03 U	0.02 U	0.03 U	0.1 U	0.02 U	0.02 U
1,2-Dichloropropane	mg/kg	0.03 U/0.03 U	0.05	0.03 U	0.02 U	0.02 U	0.03 U	0.03 U	0.02 U	0.03 U	0.1 U	0.02 U	0.02 U
Benzene	mg/kg	0.03 U/0.03 U	0.02 U	0.03 U	0.02 U	0.02 U	0.03 U	0.03 U	0.02 U	0.03 U	0.1 U	0.02 U	0.02 U
Carbon tetrachloride	mg/kg	0.03 U/0.03 U	0.33	0.03 U	0.13	0.02 U	0.03 U	0.03 U	0.02 U	0.03 U	0.1	0.03	0.02 U
Chloroform (Trichloromethane)	mg/kg	0.03 U/0.03 U	0.29	0.03 U	0.02 U	0.02 U	0.03 U	0.03 U	0.03	0.03 U	0.1	0.079	0.067
Chloromethane (Methyl chloride)	mg/kg	0.03 U/0.03 U	0.02 U	0.03 U	0.02 U	0.02 U	0.03 U	0.03 U	0.02 U	0.03 U	0.1 U	0.02 U	0.02 U
Methylene chloride	mg/kg	0.03 U/0.03 U	0.02 U	0.03 U	0.02 U	0.02 U	0.03 U	0.03 U	0.02 U	0.03 U	0.1 U	0.02 U	0.02 U
Tetrachloroethene	mg/kg	0.03 U/0.03 U	4.26	0.03 U	0.21	0.02 U	0.03 U	0.03 U	0.03 U	0.064	0.03 U	8.06	2.35
Trichloroethene	mg/kg	0.03 U/0.03 U	0.28	0.03 U	0.03	0.02 U	0.03 U	0.03 U	0.02 U	0.03 U	0.2	0.19	0.03
Vinyl chloride	mg/kg	0.03 U/0.03 U	0.02 U	0.03 U	0.02 U	0.02 U	0.03 U	0.03 U	0.02 U	0.03 U	0.1 U	0.02 U	0.02 U
<b>General Chemistry</b>													
Chloride	mg/kg	1090 J/950 J	1650 J	150 J	1210	110	84	36	32	910	490	130	280
													210

Notes:

- U Not Detected.
- J Estimated Value
- x/x Sample result/Duplicate result

Table A.1

**Summary of Soil Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	IA-24	IA-25	IA-26	IA-27	IA-28	IA-29	IA-30	IA-31	IA-32	IA-33	IA-34	IA-35	IA-36
Sample ID:	S-090710-TK-200	S-090810-TK-201	S-090810-TK-202	S-090810-TK-203	S-090810-TK-204	S-090810-TK-205	S-090810-TK-206	S-090910-TK-208	S-090910-TK-210	S-090910-TK-211	S-090910-TK-212	S-090910-TK-213	S-091010-TK-214
Sample Date:	9/7/2010	9/8/2010	9/8/2010	9/8/2010	9/8/2010	9/8/2010	9/8/2010	9/9/2010	9/9/2010	9/9/2010	9/9/2010	9/9/2010	9/10/2010
Sample Depth:	(2-4) ft BGS	(20-22) ft BGS	(16-18) ft BGS	(24-26) ft BGS	(6-8) ft BGS	(4-6) ft BGS	(8-10) ft BGS	(8-10) ft BGS	(12-14) ft BGS	(10-12) ft BGS	(9-11) ft BGS	(8-10) ft BGS	(6-8) ft BGS
<b>Parameters</b>													
<b>Units</b>													
<b>Herbicides</b>													
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.02 U	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U					
Pentachlorophenol	mg/kg	0.02 U	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U					
<b>Semi-volatile Organic Compounds</b>													
2,3,4,5-Tetrachlorophenol	mg/kg	2.4 U	2.1 U	2.1 U	2.1 U	2.4 U	2.4 U	2.4 U/2.4 U	2.4 U	2.4 U	2.5 U	2.4 U	2.4 U
2,3,4,6-Tetrachlorophenol	mg/kg	2.4 U	2.1 U	2.1 U	2.1 U	2.4 U	2.4 U	2.4 U/2.4 U	2.4 U	2.4 U	2.5 U	2.4 U	2.4 U
2,4,5-Trichlorophenol	mg/kg	0.6 U	0.5 U	0.5 U	0.5 U	0.6 U	0.6 U	0.6 U/0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
2,4,6-Trichlorophenol	mg/kg	0.6 U	0.5 U	0.5 U	0.5 U	0.6 UJ	0.6 UJ	0.6 UJ/0.6 UJ	0.6 UJ	0.6 U	0.6 U	0.6 U	0.6 U
2,4-Dichlorophenol	mg/kg	0.6 U	0.5 U	0.5 U	0.5 U	0.6 U	0.6 U	0.6 U/0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
2,5-Dichlorophenol	mg/kg	1.2 U	1.1 U	1.1 U	1.0 U	1.2 U	1.2 U	1.2 U/1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
2,6-Dichlorophenol	mg/kg	0.6 U	0.5 U	0.5 U	0.5 U	0.6 U	0.6 U	0.6 U/0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
2-Chlorophenol	mg/kg	0.6 U	0.5 U	0.5 U	0.5 U	0.6 U	0.6 U	0.6 U/0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
3/4-Chlorophenol	mg/kg	2.4 U	2.1 U	2.1 U	2.1 U	2.4 U	2.4 U	2.4 U/2.4 U	2.4 U	2.4 U	2.5 U	2.4 U	2.4 U
alpha-BHC	mg/kg	0.02 U	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U					
beta-BHC	mg/kg	0.02 U	0.02 U/0.02 U	0.07	0.05	0.07	0.02 U	0.02 U					
delta-BHC	mg/kg	0.02 U	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U					
gamma-BHC (lindane)	mg/kg	0.02 U	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U					
Hexachlorobenzene	mg/kg	0.02 U	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U					
Hexachlorobutadiene	mg/kg	0.02 U	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U					
Hexachloroethane	mg/kg	0.02 U	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U					
<b>Volatile Organic Compounds</b>													
1,1,1-Trichloroethane	mg/kg	0.03 U	0.03 U/0.03 U	0.03 U	0.03 U	0.03 U	0.02 U	0.03 U					
1,2-Dichloroethane	mg/kg	0.03 U	0.02 U/0.03 U	0.03 U	0.03 U	0.03 U	0.02 U	0.03 U					
1,2-Dichloropropane	mg/kg	0.03 U	0.02 U/0.03 U	0.03 U	0.03 U	0.03 U	0.02 U	0.03 U					
Benzene	mg/kg	0.03 U	0.02 U/0.03 U	0.03 U	0.03 U	0.03 U	0.02 U	0.03 U					
Carbon tetrachloride	mg/kg	0.03 U	0.03 U/0.03 U	0.03 U	0.03 U	0.03 U	0.02 U	0.03 U					
Chloroform (Trichloromethane)	mg/kg	0.03 U	0.03 U/0.03 U	0.03 U	0.03 U	0.03 U	0.02 U	0.03 U					
Chloromethane (Methyl chloride)	mg/kg	0.03 U	0.03 U/0.03 U	0.03 U	0.03 U	0.03 U	0.02 U	0.03 U					
Methylene chloride	mg/kg	0.03 U	0.03 U/0.03 U	0.03 U	0.03 U	0.03 U	0.02 U	0.03 U					
Tetrachloroethene	mg/kg	0.03 U	0.03 U	0.03 U	0.03 U	0.11	0.41	0.16	0.02 U/0.03 U	0.03 U	0.05 J	0.03 U	0.02 U
Trichloroethene	mg/kg	0.03 U	0.04	0.17	0.02 U/0.03 U	0.03 U	0.03 U	0.02 U	0.03 U				
Vinyl chloride	mg/kg	0.03 U	0.03 U/0.03 U	0.03 U	0.03 U	0.03 U	0.02 U	0.03 U					
<b>General Chemistry</b>													
Chloride	mg/kg	85	140	130	12	288	28	8700	1700/1800	145	150	230	51
													2800

Notes:

- U Not Detected.
- J Estimated Value
- x/x Sample result/Duplicate result

Table A.1

**Summary of Soil Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	IA-37	IA-38	IA-39	IA-40	IA-41	IA-44	IA-45	IA-49	IA-50	IA-51	IA-52	IA-53	IA-54
Sample ID:	S-091010-TK-215	S-091010-TK-216	S-091310-TK-217	S-091310-TK-218	S-091310-TK-219	S-091610-AS-223	S-091610-AS-225	S-091710-AS-230	S-092810-DK-231	S-092810-DK-232	S-092810-DK-233	S-092910-DK-235	S-92910-DK-237
Sample Date:	9/10/2010	9/10/2010	9/13/2010	9/13/2010	9/13/2010	9/16/2010	9/16/2010	9/17/2010	9/28/2010	9/28/2010	9/28/2010	9/29/2010	9/29/2010
Sample Depth:	(8-10) ft BGS	(10-12) ft BGS	(6-8) ft BGS	(2-4) ft BGS	(6-8) ft BGS	(10-12) ft BGS	(26-28) ft BGS	(10-12) ft BGS	(2-4) ft BGS	(14-16) ft BGS	(20-22) ft BGS	(6-8) ft BGS	(28-30) ft BGS
<b>Parameters</b>													
<b>Units</b>													
<b>Herbicides</b>													
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.02 U	0.02 U	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U/0.02 U	0.03 U	0.03 U
Pentachlorophenol	mg/kg	0.02 U	0.02 U	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U/0.02 U	0.03 U	0.03 U
<b>Semi-volatile Organic Compounds</b>													
2,3,4,5-Tetrachlorophenol	mg/kg	2.4 U	2.4 U	2.4 UJ	2.4 UJ	2.4 UJ	2.4 U	2.2 U	2.5 U	2.4 U	2.3 U	2.1 U/2.1 U	2.5 U
2,3,4,6-Tetrachlorophenol	mg/kg	2.4 U	2.4 U	2.4 UJ	2.4 UJ	2.4 UJ	2.4 U	2.2 U	2.5 U	2.4 U	2.3 U	2.1 U/2.1 U	2.5 U
2,4,5-Trichlorophenol	mg/kg	0.6 U	0.6 U	0.6 UJ	0.6 UJ	0.6 UJ	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U	0.5 U/0.5 U	0.6 U
2,4,6-Trichlorophenol	mg/kg	0.6 U	0.6 U	0.6 UJ	0.6 UJ	0.6 UJ	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U	0.5 U/0.5 U	0.6 U
2,4-Dichlorophenol	mg/kg	0.6 U	0.6 U	0.6 UJ	0.6 UJ	0.6 UJ	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U	0.5 U/0.5 U	0.6 U
2,5-Dichlorophenol	mg/kg	1.2 U	1.2 U	1.2 UJ	1.2 UJ	1.2 UJ	1.2 U	1.1 U	1.2 U	1.2 U	1.1 U	1.0 U/1.1 U	1.3 U
2,6-Dichlorophenol	mg/kg	0.6 U	0.6 U	0.6 UJ	0.6 UJ	0.6 UJ	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U	0.5 U/0.5 U	0.6 U
2-Chlorophenol	mg/kg	0.6 U	0.6 U	0.6 UJ	0.6 UJ	0.6 UJ	0.6 U	0.5 U	0.6 U	0.6 U	0.6 U	0.5 U/0.5 U	0.6 U
3,4-Chlorophenol	mg/kg	2.4 U	2.4 U	2.4 UJ	2.4 UJ	2.4 UJ	2.4 U	2.2 U	2.5 U	2.4 U	2.3 U	2.1 U/2.1 U	2.5 U
alpha-BHC	mg/kg	0.02 U	0.02 U	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	0.02 U/0.02 U	0.03 U				
beta-BHC	mg/kg	0.02 U	0.02 U	0.02 UJ	0.04 J	0.05 J	0.02 U	0.02 U/0.02 U	0.03 U				
delta-BHC	mg/kg	0.02 U	0.02 U	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	0.02 U/0.02 U	R				
gamma-BHC (lindane)	mg/kg	0.02 U	0.02 U	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	0.02 U/0.02 U	0.03 U				
Hexachlorobenzene	mg/kg	0.02 U	0.02 U	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	0.02 U/0.02 U	0.03 U				
Hexachlorobutadiene	mg/kg	0.02 U	0.02 U	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	0.02 U/0.02 U	0.03 U				
Hexachloroethane	mg/kg	0.02 U	0.02 U	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	0.02 U/0.02 U	0.03 U				
<b>Volatile Organic Compounds</b>													
1,1,1-Trichloroethane	mg/kg	0.03 U	0.03 U	0.02 UJ	0.03 UJ	0.02 UJ	0.02 U	0.02 U	0.03 U	0.03 U	0.03 U/0.02 U	0.03 U	0.03 U
1,2-Dichloroethane	mg/kg	0.03 U	0.03 U	0.02 UJ	0.03 UJ	0.02 UJ	0.02 U	0.02 U	0.03 U	0.03 U	0.03 U/0.02 U	0.03 U	0.03 U
1,2-Dichloropropane	mg/kg	0.03 U	0.03 U	0.02 UJ	0.03 UJ	0.02 UJ	0.02 U	0.02 U	0.03 U	0.03 U	0.03 U/0.02 U	0.03 U	0.03 U
Benzene	mg/kg	0.03 U	0.03 U	0.02 UJ	0.03 UJ	0.02 UJ	0.02 U	0.02 U	0.03 U	0.03 U	0.03 U/0.02 U	0.03 U	0.03 U
Carbon tetrachloride	mg/kg	0.03 U	0.03 U	0.02 UJ	0.03 UJ	0.05 J	0.02 U	0.02 U	0.21	1.87	0.03 U	0.03 U/0.02 U	0.03 U
Chloroform (Trichloromethane)	mg/kg	0.03 U	0.03 U	0.02 UJ	0.03 UJ	0.26 J	0.02 U	0.02 U	0.068	1.6	0.03 U	0.03 U/0.02 U	0.03 U
Chloromethane (Methyl chloride)	mg/kg	0.03 U	0.03 U	0.02 UJ	0.03 UJ	0.02 UJ	0.02 U	0.02 U	0.03 U	0.03 U	0.03 U/0.02 U	0.03 U	0.03 U
Methylene chloride	mg/kg	0.03 U	0.03 U	0.02 UJ	0.03 UJ	0.02 UJ	0.02 U	0.02 U	0.03 U	0.03 U	0.03 U/0.02 U	0.03 U	0.03 U
Tetrachloroethene	mg/kg	0.03 U	0.03 U	0.02 UJ	0.03 UJ	0.11 J	0.02 U	0.02 U	0.071	1.15	0.03 U	0.03 U/0.02 U	0.095
Trichloroethene	mg/kg	0.03 U	0.03 U	0.02 UJ	0.03 UJ	0.02 UJ	0.02 U	0.02 U	0.04	0.04	0.03 U	0.03 U/0.02 U	0.03 U
Vinyl chloride	mg/kg	0.03 U	0.03 U	0.02 UJ	0.03 UJ	0.02 UJ	0.02 U	0.02 U	0.02 U	0.03 U	0.03 U	0.03 U/0.02 U	0.03 U
<b>General Chemistry</b>													
Chloride	mg/kg	182	510	148	32	250	45	250	280	720	220	150/170	9400
													1200

Notes:

- U Not Detected.
- J Estimated Value
- x/x Sample result/Duplicate result

Table A.1

**Summary of Soil Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	IA-55	IA-56	IA-57	IA-58	IA-59	IA-60	IA-61	IA-62	IA-63	IA-64	IA-65	IA-66	IA-100
Sample ID:	S-92910-DK-238	S-93010-DK-239	S-93010-DK-240	S-93010-DK-241	S-93010-DK-242	S-10110-DK-244	S-072213-AK-001	S-072213-AK-002	S-072313-AK-003	S-072313-AK-004	S-072313-AK-005	S-072313-AK-006	S-072313-AK-007
Sample Date:	9/29/2010	9/30/2010	9/30/2010	9/30/2010	9/30/2010	10/1/2010	7/22/2013	7/22/2013	7/23/2013	7/23/2013	7/23/2013	7/23/2013	4/2/2012
Sample Depth:	(20-22) ft BGS	(8-10) ft BGS	(2-4) ft BGS	(18-20) ft BGS	(4-6) ft BGS	(4-6) ft BGS	(5-7) ft BGS	(5-7) ft BGS	(5.5-7.5) ft BGS	(10-12) ft BGS	(5-7) ft BGS	(8-13) ft BGS	(5-7) ft BGS
Parameters	Units												
<b>Herbicides</b>													
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.02 U	0.03 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U				
Pentachlorophenol	mg/kg	0.02 U	0.04/0.02 U	0.02 U	0.02 U	0.02 U	0.04	0.02 U	0.02 U				
<b>Semi-volatile Organic Compounds</b>													
2,3,4,5-Tetrachlorophenol	mg/kg	2.2 U	2.1 U	2.2 U	2.2 U	2.4 U	2.5 U/2.4 U	2.4 U	2.4 U	2.5 U	2.4 U	2.5 U	2.3 U
2,3,4,6-Tetrachlorophenol	mg/kg	2.2 U	2.1 U	2.2 U	2.2 U	2.4 U	2.5 U/2.4 U	2.4 U	2.4 U	2.5 U	2.4 U	2.5 U	2.4 U
2,4,5-Trichlorophenol	mg/kg	0.6 U	0.5 U	0.5 U	0.5 U	0.6 U	0.6 U/0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
2,4,6-Trichlorophenol	mg/kg	0.6 U	0.5 U	0.5 U	0.5 U	0.6 U	0.6 U/0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
2,4-Dichlorophenol	mg/kg	0.6 U	0.5 U	0.5 U	0.5 U	0.6 U	0.6 U/0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
2,5-Dichlorophenol	mg/kg	1.1 U	1.1 U	1.1 U	1.1 U	1.2 U	1.3 U/1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
2,6-Dichlorophenol	mg/kg	0.6 U	0.5 U	0.5 U	0.5 U	0.6 U	0.6 U/0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
2-Chlorophenol	mg/kg	0.6 U	0.5 U	0.5 U	0.5 U	0.6 U	0.6 U/0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
3/4-Chlorophenol	mg/kg	2.2 U	2.1 U	2.2 U	2.2 U	2.4 U	2.5 U/2.4 U	2.4 U	2.4 U	2.5 U	2.4 U	2.5 U	2.4 U
alpha-BHC	mg/kg	0.02 U	0.04 U	0.02 U	0.02 U	0.02 U	0.48/0.20	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
beta-BHC	mg/kg	0.02 U	0.1	0.02 U	0.02 U	0.02 U	0.34 J/0.04 J	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
delta-BHC	mg/kg	0.02 U	0.04 U	0.02 U	0.02 U	0.02 U	0.03 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
gamma-BHC (lindane)	mg/kg	0.02 U	0.04 U	0.02 U	0.02 U	0.02 U	0.03 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Hexachlorobenzene	mg/kg	0.02 U	0.74	0.02 U	0.02 U	0.02 U	0.03 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03
Hexachlorobutadiene	mg/kg	0.02 U	0.04 U	0.02 U	0.02 U	0.02 U	0.03 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Hexachloroethane	mg/kg	0.02 U	0.04 U	0.02 U	0.02 U	0.02 U	0.03 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
<b>Volatile Organic Compounds</b>													
1,1,1-Trichloroethane	mg/kg	0.03 U	0.04 U/0.03 U	0.0044 U	0.03 U	0.03 U	0.03 U	0.03 U	0.02 U				
1,2-Dichloroethane	mg/kg	0.03 U	0.04 U/0.03 U	0.0044 U	0.04	0.03 U	0.03 U	0.03 U	0.02 U				
1,2-Dichloropropane	mg/kg	0.03 U	0.04 U/0.03 U	0.0044 U	0.03 U	0.03 U	0.03 U	0.03 U	0.02 U				
Benzene	mg/kg	0.03 U	0.04 U/0.03 U	0.0044 U	0.03 U	0.03 U	0.03 U	0.03 U	0.02 U				
Carbon tetrachloride	mg/kg	0.03 U	0.04 U/0.03 U	0.0044 U	0.58	0.03 U	0.21	0.03 U	0.02 U				
Chloroform (Trichloromethane)	mg/kg	0.03 U	0.04 U/0.03 U	0.0044 U	0.667	0.13	0.4	0.079	0.074				
Chloromethane (Methyl chloride)	mg/kg	0.03 U	0.04 U/0.03 U	0.0044 U	0.03 U	0.03 U	0.03 U	0.03 U	0.02 U				
Methylene chloride	mg/kg	0.03 U	0.04 U/0.03 U	0.0044 U	0.03 U	0.03 U	0.03 U	0.03 U	0.02 U				
Tetrachloroethene	mg/kg	0.03 U	0.04 U/0.03 U	0.0044 U	0.19	0.03 U	1.33	0.23	0.911				
Trichloroethene	mg/kg	0.03 U	0.04 U/0.03 U	0.0044 U	0.03 U	0.03 U	0.04	0.03 U	0.02 U				
Vinyl chloride	mg/kg	0.03 U	0.04 U/0.03 U	0.0044 U	0.03 U	0.03 U	0.03 U	0.03 U	0.02 U				
<b>General Chemistry</b>													
Chloride	mg/kg	2890	190	170	200	2360	680/770	26	159	100	110	177	950
Notes:													
U	Not Detected.												
J	Estimated Value												
x/x	Sample result/Duplicate result												

Table A.1

**Summary of Soil Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	IA-100	IA-101	IA-101	IA-102	IA-102	PA-01	PA-01	PA-02	PA-03	PA-04	PA-04	PA-05	PA-05	PA-06	
Sample ID:	S-040212-AK-116	S-040312-AK-119	S-040312-AK-118	S-040312-AK-121	S-040312-AK-120	S-072010-TK-108	S-072010-TK-109	S-072010-TK-110	S-072110-TK-111	S-072210-TK-112	S-072210-TK-113	S-072210-TK-114	S-072310-TK-116		
Sample Date:	4/2/2012	4/3/2012	4/3/2012	4/3/2012	4/3/2012	7/20/2010	7/20/2010	7/20/2010	7/21/2010	7/22/2010	7/22/2010	7/22/2010	7/23/2010		
Sample Depth:	(31.5-33.5) ft BGS	(5-7) ft BGS	(30-32) ft BGS	(5-7) ft BGS	(30-32) ft BGS	(2-4) ft BGS	(16-18) ft BGS	(16-18) ft BGS	(25-27) ft BGS	(6-8) ft BGS	(24-26) ft BGS	(14-16) ft BGS	(20-22) ft BGS		
<b>Parameters</b>		<b>Units</b>													
<b>Herbicides</b>															
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.02 U	0.02 U												
Pentachlorophenol	mg/kg	0.02 U	0.03	0.02 U	0.02 U	0.02 U	0.07								
<b>Semi-volatile Organic Compounds</b>															
2,3,4,5-Tetrachlorophenol	mg/kg	2.4 U	2.4 U	2.2 U	2.5 U	2.1 U	2.4 U	2.2 U	2.1 U	2.1 U	2.4 U	2.1 U	1.5 U	2.2 U	
2,3,4,6-Tetrachlorophenol	mg/kg	2.4 U	2.4 U	2.2 U	2.5 U	2.1 U	2.4 U	2.2 U	2.1 U	2.1 U	2.4 U	2.1 U	1.5 U	2.2 U	
2,4,5-Trichlorophenol	mg/kg	0.6 U	0.6 U	0.5 U	0.6 U	0.5 U	0.6 U	0.6 U	0.5 U	0.5 U	0.6 U	0.5 U	0.4 U	0.6 U	
2,4,6-Trichlorophenol	mg/kg	0.6 U	0.6 U	0.5 U	0.6 U	0.5 U	0.6 U	0.6 U	0.5 U	0.5 U	0.6 U	0.5 U	0.4 U	0.6 U	
2,4-Dichlorophenol	mg/kg	0.6 U	0.6 U	0.5 U	0.6 U	0.5 U	0.6 U	0.6 U	0.5 U	0.5 U	0.6 U	0.5 U	0.4 U	0.6 U	
2,5-Dichlorophenol	mg/kg	1.2 U	1.2 U	1.1 U	1.2 U	1.1 U	1.2 U	1.1 U	1.1 U	1.0 U	1.2 U	1.0 U	0.75 U	1.1 U	
2,6-Dichlorophenol	mg/kg	0.6 U	0.6 U	0.5 U	0.6 U	0.5 U	0.6 U	0.6 U	0.5 U	0.5 U	0.6 U	0.5 U	0.4 U	0.6 U	
2-Chlorophenol	mg/kg	0.6 U	0.6 U	0.5 U	0.6 U	0.5 U	0.6 U	0.6 U	0.5 U	0.5 U	0.6 U	0.5 U	0.4 U	0.6 U	
3/4-Chlorophenol	mg/kg	2.4 U	2.4 U	2.2 U	2.5 U	2.1 U	2.4 U	2.2 U	2.1 U	2.1 U	2.4 U	2.1 U	1.5 U	2.2 U	
alpha-BHC	mg/kg	0.02 U	0.02 U												
beta-BHC	mg/kg	0.02 U	0.02 U	0.02 U	0.04	0.02 U	0.43	0.02 U	0.02 U						
delta-BHC	mg/kg	0.02 U	0.02 U												
gamma-BHC (lindane)	mg/kg	0.02 U	0.02 U												
Hexachlorobenzene	mg/kg	0.19	0.02 U	0.02 U	0.02 U	0.02 U	0.07	0.02 U	0.02 U						
Hexachlorobutadiene	mg/kg	0.05	0.02 U	0.02 U											
Hexachloroethane	mg/kg	0.02 U	0.02 U												
<b>Volatile Organic Compounds</b>															
1,1,1-Trichloroethane	mg/kg	0.03 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.0052 U	0.05 U	0.005 U	0.02 U	0.03 U	
1,2-Dichloroethane	mg/kg	0.03 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.0052 U	0.15 J	0.005 U	0.02 U	0.03 U	
1,2-Dichloropropane	mg/kg	0.03 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.088	0.04	0.0052 U	0.42 J	0.005 U	0.02 U	0.03 U	
Benzene	mg/kg	0.03 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.0052 U	0.05 U	0.005 U	0.02 U	0.03 U	
Carbon tetrachloride	mg/kg	0.03 U	0.02 U	0.02 U	0.02 U	0.03 U	0.53	3.59	0.083	0.0484 J	2.7 J	0.0284 J	0.02 U	0.04	
Chloroform (Trichloromethane)	mg/kg	0.03 U	0.02 U	0.02 U	0.02 U	0.03 U	0.13	0.23	0.087	0.0052 U	1.2 J	0.005 U	0.048	0.091 U	
Chloromethane (Methyl chloride)	mg/kg	0.03 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.0052 U	0.05 U	0.005 U	0.02 U	0.03 U	
Methylene chloride	mg/kg	0.03 U	0.02 U	0.02 U	0.02 U	0.03 U	0.03	0.03	0.03	0.0052 U	0.05 U	0.005 U	0.02	0.05 U	
Tetrachloroethene	mg/kg	0.43	0.6	0.17	0.02 U	0.03 U	0.31	1.01	0.04	0.0905 J	1.95 J	0.0281 J	0.057	0.31	
Trichloroethene	mg/kg	0.03 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.14	0.02 U	0.0152 J	0.48 J	0.0063 J	0.02 U	0.03 U	
Vinyl chloride	mg/kg	0.03 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.0052 U	0.05 U	0.005 U	0.02 U	0.03 U	
<b>General Chemistry</b>															
Chloride	mg/kg	249	610	34	38	18	890	230	950	106	215	74	58	210	

Notes:

U Not Detected.

J Estimated Value

x/x Sample result/Duplicate result

Table A.1

**Summary of Soil Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	PA-07	PA-08	PA-09	PA-10	PA-11	PA-12	PA-13	PA-14	PA-15	PA-16	PA-17	PA-18	PA-19
Sample ID:	S-072610-TK-117	S-072610-TK-119	S-072710-TK-120	S-072710-TK-121	S-072710-TK-122	S-072710-TK-123	S-072710-TK-124	S-072810-TK-125	S-072810-TK-126	S-072910-TK-134	S-072910-TK-127	S-072910-TK-128	S-072910-TK-129
Sample Date:	7/26/2010	7/26/2010	7/27/2010	7/27/2010	7/27/2010	7/27/2010	7/27/2010	7/28/2010	7/28/2010	7/29/2010	7/29/2010	7/29/2010	7/29/2010
Sample Depth:	(10-12) ft BGS	(10-12) ft BGS	(16-18) ft BGS	(18-20) ft BGS	(18-20) ft BGS	(16-18) ft BGS	(8-10) ft BGS	(18-20) ft BGS	(16-18) ft BGS	(16-18) ft BGS	(20-22) ft BGS	(18-20) ft BGS	(18-20) ft BGS
Parameters	Units												
<b>Herbicides</b>													
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.03 U/0.03 U	0.03 U	0.02 U	0.2 U	0.02 U	0.09 U	0.02 U					
Pentachlorophenol	mg/kg	0.03 U/0.03 U	0.04	0.05	0.93	0.18	0.67	0.02 U	0.02 U	0.05	0.02 U	0.02 U	0.02 U
<b>Semi-volatile Organic Compounds</b>													
2,3,4,5-Tetrachlorophenol	mg/kg	2.5 U/2.5 U	2.7 U	2.2 U	2.2 U	2.2 U	2.2 U	2.4 U	2.1 U	2.1 U	2.2 U	2.1 U	2.1 U
2,3,4,6-Tetrachlorophenol	mg/kg	2.5 U/2.5 U	2.7 U	2.2 U	2.2 U	2.2 U	2.2 U	2.4 U	2.1 U	2.1 U	2.2 U	2.1 U	2.1 U
2,4,5-Trichlorophenol	mg/kg	0.6 U/0.6 U	0.7 U	0.5 U	0.5 U	0.6 U	0.5 U	0.6 U	0.5 U				
2,4,6-Trichlorophenol	mg/kg	0.6 U/0.6 U	0.7 U	0.5 U	0.5 U	0.6 U	0.5 U	0.6 U	0.5 U				
2,4-Dichlorophenol	mg/kg	0.6 U/0.6 U	0.7 U	0.5 U	0.5 U	0.6 U	0.5 U	0.6 U	0.5 U				
2,5-Dichlorophenol	mg/kg	1.3 U/1.3 U	1.3 U	1.1 U	1.1 U	1.1 U	1.1 U	1.2 U	1.1 U	1.1 U	1.1 U	1.0 U	1.0 U
2,6-Dichlorophenol	mg/kg	0.6 U/0.6 U	0.7 U	0.5 U	0.5 U	0.6 U	0.5 U	0.6 U	0.5 U				
2-Chlorophenol	mg/kg	0.6 U/0.6 U	0.7 U	0.5 U	0.5 U	0.6 U	0.5 U	0.6 U	0.5 U				
3/4-Chlorophenol	mg/kg	2.5 U/2.5 U	2.7 U	2.2 U	2.2 U	2.2 U	2.2 U	2.4 U	2.1 U	2.1 U	2.2 U	2.1 U	2.1 U
alpha-BHC	mg/kg	0.03 U/0.03 U	0.7 U	0.15	0.02 U								
beta-BHC	mg/kg	0.03 U/0.03 U	0.7 U	0.15	0.02 U								
delta-BHC	mg/kg	0.03 U/0.03 U	0.7 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
gamma-BHC (lindane)	mg/kg	0.03 U/0.03 U	0.7 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Hexachlorobenzene	mg/kg	0.03 U/0.01	4.7	0.02 U									
Hexachlorobutadiene	mg/kg	0.03 U/0.03 U	4.8	0.02 U									
Hexachloroethane	mg/kg	0.03 U/0.03 U	11	0.02 U									
<b>Volatile Organic Compounds</b>													
1,1,1-Trichloroethane	mg/kg	0.0063 U/0.0063 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.03 U	0.11				
1,2-Dichloroethane	mg/kg	0.0063 U/0.0063 U	0.02 U	0.02 U	0.02 U	0.03 U	0.03 U	0.03 U	0.22	0.03 U	0.755	0.03 U	0.03 U
1,2-Dichloropropane	mg/kg	0.0063 U/0.0063 U	0.02 U	0.02 U	0.02 U	0.03 U	0.04	0.03 U	0.09				
Benzene	mg/kg	0.0063 U/0.0063 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.03 U	0.02 U				
Carbon tetrachloride	mg/kg	0.0063 U/0.0063 U	1.6	0.02 U	0.095	0.22	0.03 U	0.03 U	0.03 U	0.03 U	2.21	0.085	0.561
Chloroform (Trichloromethane)	mg/kg	0.0063 U/0.0063 U	0.02 U	0.02 U	0.02 U	0.03 U	0.14	0.03 U	0.22				
Chloromethane (Methyl chloride)	mg/kg	0.0063 U/0.0063 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.03 U	0.02 U				
Methylene chloride	mg/kg	0.0063 U/0.0063 U	0.02 U	0.02 U	0.02 U	0.03	0.03 U	0.03 U					
Tetrachloroethene	mg/kg	0.0063 U/0.0063 U	1.04	0.04	0.056	0.574	0.15	0.03 U	0.03 U	0.066	2.48	0.04	1.21
Trichloroethene	mg/kg	0.0063 U/0.0063 U	0.02 U	0.02 U	0.02 U	0.03 U	0.672	0.03 U	0.02 U				
Vinyl chloride	mg/kg	0.0063 U/0.0063 U	0.02 U	0.02 U	0.02 U	0.03 U	0.04	0.03 U	0.02 U				
<b>General Chemistry</b>													
Chloride	mg/kg	33/36	860	146	130	300	169	250	134	55	123	56	11
													1500

Notes:

U Not Detected.

J Estimated Value

x/x Sample result/Duplicate result

Table A.1

**Summary of Soil Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	PA-20	PA-20	PA-21	PA-22	PA-23	PA-24	PA-25	PA-26	PA-27	PA-28	PA-29	PA-30	PA-31	
Sample ID:	S-072910-TK-130	S-072910-TK-131	S-072910-TK-132	S-072910-TK-133	S-073010-TK-135	S-073010-TK-136	S-073010-TK-138	S-073010-TK-140	S-080410-RB-142	S-080210-RB-141	S-080410-RB-143	S-081310-TK-171	S-080610-TK-144	
Sample Date:	7/29/2010	7/29/2010	7/29/2010	7/29/2010	7/30/2010	7/30/2010	7/30/2010	7/30/2010	8/4/2010	8/2/2010	8/4/2010	8/13/2010	8/6/2010	
Sample Depth:	(2-4) ft BGS	(20-22) ft BGS	(20-22) ft BGS	(20-22) ft BGS	(20-22) ft BGS	(12-14) ft BGS	(22-24) ft BGS	(24-26) ft BGS	(26-28) ft BGS	(6-8) ft BGS	(10-12) ft BGS	(12-14) ft BGS	(22-24) ft BGS	
Parameters	Units													
<b>Herbicides</b>														
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.02 U	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	5 U	1 U	0.04 U					
Pentachlorophenol	mg/kg	0.07	0.02 U	0.02 U	0.02 U	0.02 U	0.06/0.08	0.17	0.02 U	0.09	26	10	0.33	
<b>Semi-volatile Organic Compounds</b>														
2,3,4,5-Tetrachlorophenol	mg/kg	2.3 U	2.1 U	2.1 U	2.2 U	2.1 U	2.3 U	2.1 U/2.2 U	2.2 U	2.1 U	2.4 U	2.5 U	9.4 U	
2,3,4,6-Tetrachlorophenol	mg/kg	2.3 U	2.1 U	2.1 U	2.2 U	2.1 U	2.3 U	2.1 U/2.2 U	2.2 U	2.1 U	2.4 U	2.5 U	19	
2,4,5-Trichlorophenol	mg/kg	0.6 U	0.5 U	0.5 U	0.5 U	0.5 U	0.6 U	0.5 U/0.5 U	0.5 U	0.5 U	0.6 U	0.6 U	2 U	
2,4,6-Trichlorophenol	mg/kg	0.6 U	0.5 U	0.5 U	0.5 U	0.5 U	0.6 U	0.5 U/0.5 U	0.5 U	0.5 U	0.6 U	0.6 U	24	
2,4-Dichlorophenol	mg/kg	1	0.5 U	0.5 U	0.5 U	0.5 U	0.6 U	0.5 U/0.5 U	0.5 U	0.5 U	0.6 U	0.6 U	12	
2,5-Dichlorophenol	mg/kg	1.2 U	1.0 U	1.1 U	1.1 U	1.1 U	1.2 U	1.1 U/1.1 U	1.1 U	1.1 U	1.2 U	1.2 U	4.7 U	
2,6-Dichlorophenol	mg/kg	0.6 U	0.5 U	0.5 U	0.5 U	0.5 U	0.6 U	0.5 U/0.5 U	0.5 U	0.5 U	0.6 U	0.6 U	2 U	
2-Chlorophenol	mg/kg	0.6 U	0.5 U	0.5 U	0.5 U	0.5 U	0.6 U	0.5 U/0.5 U	0.5 U	0.5 U	0.6 U	0.6 U	0.5 U	
3/4-Chlorophenol	mg/kg	2.3 U	2.1 U	2.1 U	2.2 U	2.1 U	2.3 U	2.1 U/2.2 U	2.2 U	2.1 U	2.4 U	2.5 U	9.4 U	
alpha-BHC	mg/kg	0.2 U	0.02 U	0.02 U	0.02 U	0.02 U	0.28	0.02 U/0.02 U	0.03	0.02 U	0.2	0.08	0.03 J	
beta-BHC	mg/kg	1.9	0.02 U	0.02 U	0.03	0.02 U	0.1	0.02 U/0.02 U	0.03	0.02 U	0.41	0.08	0.04 J	
delta-BHC	mg/kg	0.2 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U/0.02 U	0.02 U	0.02 U	0.05 U	0.05 U	0.02 UJ	
gamma-BHC (lindane)	mg/kg	0.2 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U/0.02 U	0.02 U	0.02 U	0.09	0.05 U	0.02 UJ	
Hexachlorobenzene	mg/kg	2.7	0.02 U	0.02 U	0.02 U	0.02 U	0.08	0.02 U/0.02 U	0.02 U	0.02 U	0.2	0.05 U	0.02 UJ	
Hexachlorobutadiene	mg/kg	0.2 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U/0.02 U	0.02 U	0.02 U	0.05 U	0.05 U	0.02 U	
Hexachloroethane	mg/kg	0.2 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U/0.02 U	0.02 U	0.02 U	0.05 U	0.79	0.02 UJ	
<b>Volatile Organic Compounds</b>														
1,1,1-Trichloroethane	mg/kg	0.03 U	0.03 U	0.03	0.09 U	0.03 U	0.68 J	0.03 U/0.03 U	0.03 U	0.02 U	0.04	0.02 U	0.04 U	
1,2-Dichloroethane	mg/kg	0.03 U	0.03 U	0.48	0.09 U	0.03 U	0.08 U	0.03 U/0.03 U	0.03 U	0.02 U	0.02 U	0.02 U	0.03 U	
1,2-Dichloropropane	mg/kg	0.03 U	0.03 U	2.54	0.1	0.03 U	0.08 U	0.03 U/0.03 U	0.066	0.15	0.02 U	0.02 U	0.04 U	
Benzene	mg/kg	0.03 U	0.03 U	0.03 U	0.09 U	0.03 U	0.08 U	0.03 U/0.03 U	0.03 U	0.02 U	0.02 U	0.02 U	0.03 U	
Carbon tetrachloride	mg/kg	1.16	0.04	1.29	1.9	0.03	5.4 J	0.03 U/0.03 U	0.52	1.28	1.31	0.03	5.4	
Chloroform (Trichloromethane)	mg/kg	0.15	0.03 U	1	7.94	0.03 U	8.69 J	0.03 U/0.03 U	0.099	0.32	0.1	0.04	0.82	
Chloromethane (Methyl chloride)	mg/kg	0.03 U	0.03 U	0.03 U	0.09 U	0.03 U	0.08 U	0.03 U/0.03 U	0.03 U	0.02 U	0.02 U	0.02 U	0.03 U	
Methylene chloride	mg/kg	0.03 U	0.03 U	0.05	0.09 U	0.03 U	0.08 U	0.03 U/0.03 U	0.03 U	0.02 U	0.02 U	0.02 U	0.04 U	
Tetrachloroethene	mg/kg	5.85	0.057	0.582	0.3	0.03	6.51 J	0.03 U/0.04	0.2	0.32	3.78	5.79 J	1.4	
Trichloroethene	mg/kg	2.26	0.03 U	0.48	0.09 U	0.03 U	0.08 U	0.03 U/0.03 U	0.04	0.055	0.04	0.02 U	0.04 U	
Vinyl chloride	mg/kg	0.03 U	0.03 U	0.03 U	0.09 U	0.03 U	0.08 U	0.03 U/0.03 U	0.03 U	0.02 U	0.02 U	0.02 U	0.03 U	
<b>General Chemistry</b>														
Chloride	mg/kg	410	141	146	170	19	73	230/330	590	148	240	70	160	
													11	

Notes:

U Not Detected.

J Estimated Value

x/x Sample result/Duplicate result

Table A.1

**Summary of Soil Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	PA-32	PA-33	PA-34	PA-35	PA-35	PA-35A	PA-35B	PA-35C	PA-35C	PA-35D	PA-35E	PA-36	PA-37
Sample ID:	S-080610-TK-145	S-080910-TK-146	S-080910-TK-147	S-080910-TK-148	S-080910-TK-149	S-011012-WP-246	S-011012-WP-247	S-011012-WP-248	S-011012-WP-249	S-011012-WP-251	S-011012-WP-253	S-080910-TK-150	S-080910-TK-151
Sample Date:	8/6/2010	8/9/2010	8/9/2010	8/9/2010	8/9/2010	1/10/2012	1/10/2012	1/10/2012	1/10/2012	1/10/2012	1/10/2012	8/9/2010	8/9/2010
Sample Depth:	(24-26) ft BGS	(14-16) ft BGS	(10-12) ft BGS	(4-6) ft BGS	(12-14) ft BGS	(7.5-8.5) ft BGS	(3.5-4) ft BGS	(0.9-1.4) ft BGS	(8-9) ft BGS	(5-6.5) ft BGS	(3.8-4.8) ft BGS	(20-22) ft BGS	(8-10) ft BGS
<b>Parameters</b>													
<b>Herbicides</b>													
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.02 U	0.02 U	0.02 U	2 U	2 U	0.02 U	0.03 U	0.03 U	0.02 U/0.02 U	0.02 U	0.03 U	0.02 U
Pentachlorophenol	mg/kg	0.06	0.17	0.04	10	9	0.4	2.7	0.3	0.05/0.03	0.07 J	0.03 U	0.13
<b>Semi-volatile Organic Compounds</b>													
2,3,4,5-Tetrachlorophenol	mg/kg	2.1 U	2.3 U	2.4 U	2.5 U	2.3 U	2.5 U	2.5 U	2.6 U	2.4 U/2.4 U	2.4 U	2.6 U	2.1 U
2,3,4,6-Tetrachlorophenol	mg/kg	2.1 U	2.3 U	2.4 U	2.5 U	4.1	2.5 U	2.5 U	2.6 U	2.4 U/2.4 U	2.4 U	2.6 U	2.1 U
2,4,5-Trichlorophenol	mg/kg	0.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U/0.6 U	0.6 U	0.6 U	0.5 U
2,4,6-Trichlorophenol	mg/kg	0.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U/0.6 U	0.6 U	0.6 U	0.5 U
2,4-Dichlorophenol	mg/kg	0.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	1.3	0.6 U	0.6 U/0.6 U	0.6 U	0.6 U	0.5 U
2,5-Dichlorophenol	mg/kg	1.0 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.3 U	1.3 U	1.2 U/1.2 U	1.2 U	1.3 U	1.1 U
2,6-Dichlorophenol	mg/kg	0.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U/0.6 U	0.6 U	0.6 U	0.5 U
2-Chlorophenol	mg/kg	0.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U/0.6 U	0.6 U	0.6 U	0.5 U
3/4-Chlorophenol	mg/kg	2.1 U	2.3 U	2.4 U	2.5 U	2.3 U	2.5 U	2.5 U	2.6 U	2.4 U/2.4 U	2.4 U	2.6 U	2.1 U
alpha-BHC	mg/kg	0.02 U	0.1	0.02 U	10 U	0.5 U	0.02 U	0.1 U	10 U	10 U/100 U	2 U	0.03 U	0.04 U
beta-BHC	mg/kg	0.02 U	0.61	0.1	10	0.5 U	0.24	1.8	10 U	10 U/100 U	2 U	0.03 U	0.05
delta-BHC	mg/kg	0.02 U	0.1	0.02 U	10 U	0.5 U	0.02 U	0.1 U	10 U	10 U/100 U	2 U	0.03 U	0.04 U
gamma-BHC (lindane)	mg/kg	0.02 U	0.37	0.02 U	10 U	0.5 U	0.02 U	0.1 U	10 U	10 U/100 U	2 U	0.03 U	0.04 U
Hexachlorobenzene	mg/kg	0.02 U	0.1	0.02 U	20	2	0.02 U	0.1 U	10 U	10 U/100 U	36	0.03 U	0.3
Hexachlorobutadiene	mg/kg	0.02 U	0.07	0.02 U	10 U	0.7	0.06	0.1 U	30	20/100 U	20	0.03 U	0.05
Hexachloroethane	mg/kg	0.02 U	0.05 U	0.02 U	53	8.1	0.02 U	0.1 U	100	580 J/1700 J	720	0.03 U	0.2
<b>Volatile Organic Compounds</b>													
1,1,1-Trichloroethane	mg/kg	0.03 U	0.03 U	0.03 U	10 U	0.4 U	0.03 U	0.05 U	10 U	1 U/1 U	0.1 U	1 U	0.03 U
1,2-Dichloroethane	mg/kg	0.03 U	0.03 U	0.03 U	10 U	0.4 U	0.03 U	0.05 U	10 U	1 U/1 U	0.1 U	1 U	0.03 U
1,2-Dichloropropane	mg/kg	0.03 U	0.03 U	0.03 U	10 U	0.4 U	0.03 U	0.05 U	10 U	1 U/1 U	0.1 U	1 U	0.03 U
Benzene	mg/kg	0.03 U	0.03 U	0.03 U	10 U	0.4 U	0.03 U	0.05 U	10 U	1 U/1 U	0.1 U	1 U	0.03 U
Carbon tetrachloride	mg/kg	0.32	0.637	0.58	1300	35.8	0.1	0.05 U	1080	10 J/55.7 J	13.1	1 U	1.48
Chloroform (Trichloromethane)	mg/kg	0.35	0.23	0.19	489	61.6	0.22 J	3.25 J	496 J	86.3 J/55.4 J	12.1 J	129 J	0.5
Chloromethane (Methyl chloride)	mg/kg	0.03 U	0.03 U	0.03 U	10 U	0.4 U	0.03 U	0.05 U	10 U	1 U/1 U	0.1 U	1 U	0.03 U
Methylene chloride	mg/kg	0.03 U	0.03 U	0.04	20	4.9	0.03 U	0.07	20	11 J/3.5 J	0.1 U	4.3 J	0.03 U
Tetrachloroethene	mg/kg	0.054	0.57	0.16	67	8.4	0.05	5.09	2310	4.2 J/175 J	2.1	2.8 J	0.19
Trichloroethene	mg/kg	0.03 U	0.03 U	0.03 U	10 U	0.4 U	0.03 U	0.05 U	10 U	1 U/1 U	0.1 U	1 U	0.03 U
Vinyl chloride	mg/kg	0.03 U	0.03 U	0.03 U	10 U	0.4 U	0.03 U	0.05 U	10 U	1 U/1 U	0.1 U	1 U	0.03 U
<b>General Chemistry</b>													
Chloride	mg/kg	27	22	93	81	84	33	419	130	750/650	53	500	280
													240

Notes:

- U Not Detected.
- J Estimated Value
- x/x Sample result/Duplicate result

Table A.1

**Summary of Soil Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	PA-38	PA-38	PA-39	PA-40	PA-41	PA-42	PA-42	PA-43	PA-44	PA-45	PA-46	PA-47	PA-48	
Sample ID:	S-081010-TK-152	S-081010-TK-153	S-081010-TK-154	S-081010-TK-156	S-081010-TK-157	S-081110-TK-158	S-081110-TK-159	S-081110-TK-160	S-081110-TK-161	S-081210-TK-163	S-081210-TK-164	S-081210-TK-165	S-081310-TK-166	
Sample Date:	8/10/2010	8/10/2010	8/10/2010	8/10/2010	8/10/2010	8/11/2010	8/11/2010	8/11/2010	8/11/2010	8/12/2010	8/12/2010	8/12/2010	8/13/2010	
Sample Depth:	(4-6) ft BGS	(20-22) ft BGS	(24-26) ft BGS	(24-26) ft BGS	(20-22) ft BGS	(2-4) ft BGS	(10-12) ft BGS	(24-26) ft BGS	(24-26) ft BGS	(28-30) ft BGS	(26-28) ft BGS	(26-28) ft BGS	(26-28) ft BGS	
Parameters	Units													
<b>Herbicides</b>														
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.02 U	0.02 U	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	
Pentachlorophenol	mg/kg	0.02 U	0.02 U	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	
<b>Semi-volatile Organic Compounds</b>														
2,3,4,5-Tetrachlorophenol	mg/kg	2.4 U	2.1 U	2.1 U/2.1 U	2.1 U	2.2 U	2.4 U	2.3 U	2.1 U	2.1 U	2.0 U	2.2 U	2.1 U	
2,3,4,6-Tetrachlorophenol	mg/kg	2.4 U	2.1 U	2.1 U/2.1 U	2.1 U	2.2 U	2.4 U	2.3 U	2.1 U	2.1 U	2.0 U	2.2 U	2.1 U	
2,4,5-Trichlorophenol	mg/kg	0.6 U	0.5 U	0.5 U/0.5 U	0.5 U	0.5 U	0.6 U	0.6 U	0.5 U					
2,4,6-Trichlorophenol	mg/kg	0.6 U	0.5 U	0.5 U/0.5 U	0.5 U	0.5 U	0.6 U	0.6 U	0.5 U					
2,4-Dichlorophenol	mg/kg	0.6 U	0.5 U	0.5 U/0.5 U	0.5 U	0.5 U	0.6 U	0.6 U	0.5 U					
2,5-Dichlorophenol	mg/kg	1.2 U	1.1 U	1.0 U/1.0 U	1.0 U	1.1 U	1.2 U	1.2 U	1.1 U	1.1 U	1.0 U	1.1 U	1.0 U	
2,6-Dichlorophenol	mg/kg	0.6 U	0.5 U	0.5 U/0.5 U	0.5 U	0.5 U	0.6 U	0.6 U	0.5 U					
2-Chlorophenol	mg/kg	0.6 U	0.5 U	0.5 U/0.5 U	0.5 U	0.5 U	0.6 U	0.6 U	0.5 U					
3/4-Chlorophenol	mg/kg	2.4 U	2.1 U	2.1 U/2.1 U	2.1 U	2.2 U	2.4 U	2.3 U	2.1 U	2.1 U	2.0 U	2.2 U	2.1 U	
alpha-BHC	mg/kg	0.02 U	0.02 U	0.04/0.04	0.02 U	0.02 U	0.1	0.02 U	0.04 U	0.02 U	0.02 U	0.02 U	0.02 U	
beta-BHC	mg/kg	0.02 U	0.02 U	0.03/0.03	0.02 U	0.03	0.05 U	0.02 U	0.04 U	0.02 U	0.02 U	0.02 U	0.02 U	
delta-BHC	mg/kg	0.02 U	0.02 U	0.02 U/0.02 U	0.02 U	0.02 U	0.05 U	0.02 U	0.04 U	0.02 U	0.02 U	0.02 U	0.02 U	
gamma-BHC (lindane)	mg/kg	0.02 U	0.02 U	0.02 U/0.02 U	0.02 U	0.02 U	0.05 U	0.02 U	0.04 U	0.02 U	0.02 U	0.02 U	0.02 U	
Hexachlorobenzene	mg/kg	0.02 U	0.02 U	0.02 U/0.02 U	0.02 U	0.04	0.05 U	0.02 U	0.76	0.02 U	0.02 U	0.02 U	0.02 U	
Hexachlorobutadiene	mg/kg	0.21	0.02 U	0.02 U/0.02 U	0.02 U	0.02 U	0.5	0.02 U	0.04 U	0.02 U	0.02 U	0.02 U	0.02 U	
Hexachloroethane	mg/kg	0.09	0.02 U	0.02 U/0.02 U	0.02 U	0.02 U	0.07	0.02 U	0.04 U	0.02 U	0.02 U	0.02 U	0.02 U	
<b>Volatile Organic Compounds</b>														
1,1,1-Trichloroethane	mg/kg	0.4	0.03 U	0.03 U/0.03 U	0.03 U	0.03 U	1 U	0.07	0.04	0.16	0.03	0.03 U	0.04 U	
1,2-Dichloroethane	mg/kg	1.8	0.97	0.03/0.03 U	0.03 U	0.03 U	1 U	0.04 U	0.03 U	0.11	0.27	0.03 U	0.04 U	
1,2-Dichloropropane	mg/kg	0.4	0.077	0.03 U/0.03 U	0.03 U	0.03 U	1 U	0.04 U	0.03 U	0.03 U	0.03 U	0.03 U	0.04 U	
Benzene	mg/kg	0.2 U	0.03 U	0.03 U/0.03 U	0.03 U	0.03 U	1 U	0.04 U	0.03 U	0.03 U	0.03 U	0.03 U	0.04 U	
Carbon tetrachloride	mg/kg	5.33	0.082	0.18/0.20	0.098	0.34	6.7	0.47	0.13	0.35	0.04	0.03 U	0.078	0.04 U
Chloroform (Trichloromethane)	mg/kg	17.6	0.27	0.19/0.17	0.11	0.28	35.8	2.88	0.28	1.29	0.31	0.03 U	0.096	0.04 U
Chloromethane (Methyl chloride)	mg/kg	0.2 U	0.03 U	0.03 U/0.03 U	0.03 U	0.03 U	1 U	0.04 U	0.03 U	0.03 U	0.03 U	0.03 U	0.04 U	0.04 U
Methylene chloride	mg/kg	0.2 U	0.068	0.03/0.03	0.03 U	0.03 U	3.9	0.04 U	0.03 U	0.44	0.15	0.03 U	0.04	0.04 U
Tetrachloroethene	mg/kg	5.4	0.04	0.15/0.098	0.05	0.22	66.4	3.65	0.12	0.4	0.05	0.03 U	0.36	0.04 U
Trichloroethene	mg/kg	0.78	0.03 U	0.03 U/0.03 U	0.03 U	0.03 U	1 U	0.08	0.03 U	0.03	0.03 U	0.03 U	0.03 U	0.04 U
Vinyl chloride	mg/kg	0.2 U	0.03 U	0.03 U/0.03 U	0.03 U	0.03 U	1 U	0.04 U	0.03 U	0.04 U				
<b>General Chemistry</b>														
Chloride	mg/kg	1760	450	29/38	106	51	300	53	120	150	29	16	47	65

Notes:

U Not Detected.

J Estimated Value

x/x Sample result/Duplicate result

Table A.1

**Summary of Soil Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	PA-49	PA-49	PA-50	PA-51	PA-51	PA-52	PA-53	PA-54	RA-7	RA-8	RA-9	RA-10
Sample ID:	S-081310-TK-167	S-081310-TK-168	S-081310-TK-169	S-011012-WP-254	S-011012-WP-255	S-030912-AK-018	S-030912-AK-017	S-030912-AK-019	S-06252015-JR-009	S-06252015-JR-010	S-06242015-JR-008	S-06232015-JR-007
Sample Date:	8/13/2010	8/13/2010	8/13/2010	1/10/2012	1/10/2012	3/9/2012	3/9/2012	3/9/2012	6/25/2015	6/25/2015	6/24/2015	6/23/2015
Sample Depth:	(4-6) ft BGS	(10-12) ft BGS	(24-26) ft BGS	(8-9) ft BGS	(28-29) ft BGS	(1-3) ft BGS	(3-5) ft BGS	(1-3) ft BGS	(1.5-2) ft BGS	(1.5-2) ft BGS	(1.5-2) ft BGS	(1.5-2) ft BGS
Parameters	Units											
<b>Herbicides</b>												
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.02 U	0.02 U	0.02 U/0.02 U	0.02 U	0.02 U	0.08	6	0.5 U	0.02 U	0.03 U	0.02 U
Pentachlorophenol	mg/kg	0.02 U	0.02 U	0.09/0.14	1.3	0.17	30	180	1000	0.02 U	0.03 U	0.18
<b>Semi-volatile Organic Compounds</b>												
2,3,4,5-Tetrachlorophenol	mg/kg	2.5 U	2.4 U	2.1 U/2.1 U	2.5 U	2.1 U	2.6 U	49 U	2.5 U	2.5 U	2.9 U	2.3 U
2,3,4,6-Tetrachlorophenol	mg/kg	2.5 U	2.4 U	2.1 U/2.1 U	2.5 U	2.1 U	2.6 U	120	16.8	2.5 U	2.9 U	2.4 U
2,4,5-Trichlorophenol	mg/kg	0.6 U	0.6 U	0.5 U/0.5 U	0.6 U	0.5 U	0.7 U	10 U	0.6 U	0.6 U	0.7 U	0.6 U
2,4,6-Trichlorophenol	mg/kg	0.6 U	0.6 U	0.5 U/0.5 U	0.6 U	0.5 U	1.6	458	4.4	0.6 U	0.7 U	0.6 U
2,4-Dichlorophenol	mg/kg	0.6 U	0.6 U	0.5 U/0.5 U	0.6 U	0.5 U	9.1	296	11	0.6 U	0.7 U	0.6 U
2,5-Dichlorophenol	mg/kg	1.2 U	1.2 U	1.0 U/1.1 U	1.2 U	1.0 U	1.3 U	24 U	1.2 U	1.2 U	1.4 U	1.2 U
2,6-Dichlorophenol	mg/kg	0.6 U	0.6 U	0.5 U/0.5 U	0.6 U	0.5 U	0.7 U	46	0.6 U	0.6 U	0.7 U	0.6 U
2-Chlorophenol	mg/kg	0.6 U	0.6 U	0.5 U/0.5 U	0.6 U	0.5 U	0.7 U	42	0.6 U	0.6 U	0.7 U	0.6 U
3/4-Chlorophenol	mg/kg	2.5 U	2.4 U	2.1 U/2.1 U	2.5 U	2.1 U	2.6 U	64	2.5 U	2.5 U	2.9 U	2.3 U
alpha-BHC	mg/kg	0.05 U	0.02 U	0.02 U/0.02 U	0.02 U	0.04 U	40	0.5	3	0.02 U	0.6 U	0.03
beta-BHC	mg/kg	0.05 U	0.02 U	0.02 U/0.02 U	0.1	0.04 U	30	1 U	2 U	0.02 U	1	0.9 J
delta-BHC	mg/kg	0.05 U	0.02 U	0.02 U/0.02 U	0.02 U	0.04 U	10 U	1 U	2 U	0.02 U	0.6 U	0.02 U
gamma-BHC (lindane)	mg/kg	0.05 U	0.02 U	0.02 U/0.02 U	0.02 U	0.04 U	10 U	1 U	2 U	0.02 U	0.6 U	0.02 U
Hexachlorobenzene	mg/kg	0.05 U	0.02 U	0.02 U/0.02 U	0.05	0.2	10 U	1 U	2 U	0.04 J	4.5	12
Hexachlorobutadiene	mg/kg	0.36	0.02 U	0.02 U/0.02 U	0.02 U	0.1	10 U	1 U	2 U	0.02 U	0.6 U	1 J
Hexachloroethane	mg/kg	0.05 U	0.02 U	0.02 U/0.02 U	0.02 U	0.05	10 U	1 U	2 U	0.02 U	0.6 U	0.02 U
<b>Volatile Organic Compounds</b>												
1,1,1-Trichloroethane	mg/kg	0.03 U	0.12	0.03 U/0.03 U	0.2	0.03 U	0.03 U	0.1 U	0.1 U	0.0046 U	0.08 U	0.004 U
1,2-Dichloroethane	mg/kg	0.03 U	0.03 U	0.03 U/0.03 U	0.2 J	0.03 J	0.03 U	0.1 U	0.1 U	0.0046 U	0.08 U	0.0095
1,2-Dichloropropane	mg/kg	0.03 U	0.03 U	0.03 U/0.03 U	0.09 U	0.03 U	0.03 U	0.1 U	0.1 U	0.0046 U	0.08 U	0.0043 U
Benzene	mg/kg	0.03 U	0.03 U	0.03 U/0.03 U	0.09 U	0.03 U	0.05	0.1 U	0.1 U	0.0046 U	0.08 U	0.004 U
Carbon tetrachloride	mg/kg	1.26 J	2.94	0.093/0.14	9.19	0.16	0.03 U	8.82	0.1 U	0.0046 U	0.08 U	0.004 U
Chloroform (Trichloromethane)	mg/kg	1.32 J	1.29	0.19/0.31	5.3 J	0.3 J	0.03 U	4.96	0.1	0.0046 U	0.08 U	0.0096
Chloromethane (Methyl chloride)	mg/kg	0.03 U	0.03 U	0.03 U/0.03 U	0.09 U	0.03 U	0.03 U	0.1 U	0.1 U	0.0046 U	0.08 U	0.0043 U
Methylene chloride	mg/kg	0.03 U	0.03 U	0.03 U/0.03 U	0.09 U	0.04	0.03 U	0.91	0.1 U	0.0046 U	0.08 U	0.004 U
Tetrachloroethene	mg/kg	0.35 J	0.798	0.03 U/0.03 U	5.44	0.2	0.931	10.1	2.4	0.0046 U	3.53	4.28
Trichloroethene	mg/kg	0.03 U	0.04	0.03 U/0.03 U	2.1 J	0.03 U	0.03 U	0.1 U	0.1 U	0.0046 U	0.08 U	0.011
Vinyl chloride	mg/kg	0.03 U	0.03 U	0.03 U/0.03 U	0.09 U	0.03 U	0.03 U	0.1 U	0.1 U	0.0046 U	0.08 U	0.0043 U
<b>General Chemistry</b>												
Chloride	mg/kg	55	52	79/92	58	26	81	1230	182	39	281	1400
												1680

Notes:

U Not Detected.

J Estimated Value

x/x Sample result/Duplicate result

Table A.1

**Summary of Soil Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	RA-11	RA-12	RA-13	RA-14	RA-15	RA-16	RA-17	RA-18	RA-19	SO-2	SO-2	SO-5
Sample ID:	S-06252015-JR-011	S-06252015-JR-013	S-06252015-JR-014	S-06252015-JR-020	S-06252015-JR-016	S-06252015-JR-015	S-06252015-JR-019	S-06252015-JR-017	S-06252015-JR-018	S-072413-AK-017	S-072413-AK-016	S-072413-AK-025
Sample Date:	6/25/2015	6/25/2015	6/25/2015	6/25/2015	6/25/2015	6/25/2015	6/25/2015	6/25/2015	6/25/2015	7/24/2013	7/24/2013	7/24/2013
Sample Depth:	(1.5-2) ft BGS	(1.5-2) ft BGS	(1.5-2) ft BGS	(1.5-2) ft BGS	(1.5-2) ft BGS	(1.5-2) ft BGS	(1.5-2) ft BGS	(1.5-2) ft BGS	(1.5-2) ft BGS	(5-7) ft BGS	(25-27) ft BGS	(5-9) ft BGS
Parameters	Units											
<b>Herbicides</b>												
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.03 U/0.03 U	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U					
Pentachlorophenol	mg/kg	0.03 U/0.03 U	0.14	0.03 U	0.02 U	0.02 U	0.1	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
<b>Semi-volatile Organic Compounds</b>												
2,3,4,5-Tetrachlorophenol	mg/kg	2.9 U/2.5 U	2.2 UJ	2.5 U	2.5 U	R	2.0 U	2.3 UJ	2.4 U	2.5 U	2.4 U	2.1 U
2,3,4,6-Tetrachlorophenol	mg/kg	2.9 U/2.5 U	2.2 UJ	2.5 U	2.5 U	R	2.0 U	2.3 UJ	2.4 U	2.5 U	2.4 U	2.1 U
2,4,5-Trichlorophenol	mg/kg	0.7 U/0.6 U	0.5 UJ	0.6 U	0.6 U	R	3 U	0.6 UJ	0.6 U	0.6 U	0.6 U	0.5 U
2,4,6-Trichlorophenol	mg/kg	0.7 U/0.6 U	0.5 UJ	0.6 U	0.6 U	R	3 U	0.6 UJ	0.6 U	0.6 U	0.6 U	0.6 U
2,4-Dichlorophenol	mg/kg	0.7 U/0.6 U	0.5 UJ	0.6 U	0.6 U	R	3 U	0.6 UJ	0.6 U	0.6 U	0.6 U	0.6 U
2,5-Dichlorophenol	mg/kg	1.5 U/1.3 U	1.1 UJ	1.3 U	1.2 U	R	6 U	1.2 UJ	1.2 U	1.2 U	1.2 U	1.1 U
2,6-Dichlorophenol	mg/kg	0.7 U/0.6 U	0.5 UJ	0.6 U	0.6 U	R	3 U	0.6 UJ	0.6 U	0.6 U	0.6 U	0.5 U
2-Chlorophenol	mg/kg	0.7 U/0.6 U	0.5 UJ	0.6 U	0.6 U	R	3 U	0.6 UJ	0.6 U	0.6 U	0.6 U	0.6 U
3,4-Chlorophenol	mg/kg	2.9 U/2.5 U	2.2 UJ	2.5 U	2.5 U	R	2.0 U	2.3 UJ	2.4 U	2.5 U	2.4 U	2.1 U
alpha-BHC	mg/kg	0.3 J/0.08 J	10 U	0.03 U	1 U	6	20 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
beta-BHC	mg/kg	1.3/0.66	10 U	0.03 U	24	8	50	0.24	0.04	0.1	0.02 U	0.02 U
delta-BHC	mg/kg	0.03 U/0.03 U	10 U	0.03 U	1 U	2 U	20 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
gamma-BHC (lindane)	mg/kg	0.16 J/0.08 J	10 U	0.03 U	1 U	2 U	20 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Hexachlorobenzene	mg/kg	0.03 U/0.04	50	0.03 U	2	3	170	0.23	0.02 U	0.22	0.02 U	0.02 U
Hexachlorobutadiene	mg/kg	0.03 U/0.03 U	10 U	0.03 U	1 U	2 U	20 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Hexachloroethane	mg/kg	0.03 U/0.03 U	10 U	0.03 U	1 U	2 U	20 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
<b>Volatile Organic Compounds</b>												
1,1,1-Trichloroethane	mg/kg	0.08 U/0.06 U	0.2 U	0.06 U	0.0047 U	0.04 U	0.03 U	0.0041 U	0.0042 U	0.0047 U	0.03 U	0.02 U
1,2-Dichloroethane	mg/kg	0.08 U/0.06 U	0.2 U	0.06 U	0.0047 U	0.04 U	0.03 U	0.0041 U	0.0042 U	0.0047 U	0.03 U	0.02 U
1,2-Dichloropropane	mg/kg	0.08 U/0.06 U	0.2 U	0.06 U	0.0047 U	0.04 U	0.03 U	0.0041 U	0.0042 U	0.0047 U	0.06	0.02 U
Benzene	mg/kg	0.08 U/0.06 U	0.2 U	0.06 U	0.0047 U	0.04 U	0.03 U	0.0041 U	0.0042 U	0.0047 U	0.03 U	0.02 U
Carbon tetrachloride	mg/kg	0.36/0.37	0.5	0.06 U	0.0047 U	0.04 U	0.03 U	0.0041 U	0.0042 U	0.0047 U	0.16	0.05
Chloroform (Trichloromethane)	mg/kg	0.1/0.1	0.2 U	0.06 U	0.0047 U	0.08	0.03 U	0.0041 U	0.0042 U	0.0047 U	0.3	0.04
Chloromethane (Methyl chloride)	mg/kg	0.08 U/0.06 U	0.2 U	0.06 U	0.0047 U	0.04 U	0.03 U	0.0041 U	0.0042 U	0.0047 U	0.03 U	0.02 U
Methylene chloride	mg/kg	0.08 U/0.06 U	0.2 U	0.06 U	0.0047 U	0.04 U	0.03 U	0.0041 U	0.0042 U	0.0047 U	0.03 U	0.02 U
Tetrachloroethene	mg/kg	4.98/5.98	20.9	0.13	0.011	3.31	1.02	0.011	0.0042 U	0.0047 U	0.19	0.04
Trichloroethene	mg/kg	0.08 U/0.06 U	0.2 U	3.39	0.0047 U	0.06	0.21	0.0041 U	0.0042 U	0.0047 U	0.03 U	0.02 U
Vinyl chloride	mg/kg	0.08 U/0.06 U	0.2 U	0.06 U	0.0047 U	0.04 U	0.03 U	0.0041 U	0.0042 U	0.0047 U	0.03 U	0.02 U
<b>General Chemistry</b>												
Chloride	mg/kg	256/275	1000	521	206	1790	125	167	137	313	169	19
Notes:												
U	Not Detected.											
J	Estimated Value											
x/x	Sample result/Duplicate result											

Table A.1

**Summary of Soil Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	SO-5	SW-9	SW-9	SW-10	SW-10	SW-10	SW-16	SW-17
Sample ID:	S-072413-AK-026	S-12132012-JR-021	S-12132012-JR-022	S-12132012-JR-025	S-12132012-JR-027	S-12132012-JR-028	S-12132012-JR-023	S-12142012-JR-031
Sample Date:	7/24/2013	12/13/2012	12/13/2012	12/13/2012	12/13/2012	12/13/2012	12/13/2012	12/14/2012
Sample Depth:	(12.5-15) ft BGS	(6-7) ft BGS	(13-14) ft BGS	(7-8) ft BGS	(17-18) ft BGS	(27-28) ft BGS	(0-0.5) ft BGS	(0-0.5) ft BGS
<b>Parameters</b>								
<b>Herbicides</b>								
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.02 U	0.02 U	0.02 U	0.03 U/0.02 U	0.02 U	0.02 U	0.02 U
Pentachlorophenol	mg/kg	0.02 U	20	0.02 U	0.03 U/0.02 U	0.02 U	0.03	0.09/0.12
<b>Semi-volatile Organic Compounds</b>								
2,3,4,5-Tetrachlorophenol	mg/kg	2.4 U	2.4 U	2.4 U	2.6 U/2.4 U	2.4 U	2.2 U	2.1 U/2.2 U
2,3,4,6-Tetrachlorophenol	mg/kg	2.4 U	2.4 U	2.4 U	2.6 U/2.4 U	2.4 U	2.2 U	2.1 U/2.2 U
2,4,5-Trichlorophenol	mg/kg	0.6 U	0.6 U	0.6 U	0.6 U/0.6 U	0.6 U	0.5 U	0.5 U/0.5 U
2,4,6-Trichlorophenol	mg/kg	0.6 U	0.6 U	0.6 U	0.6 U/0.6 U	0.6 U	0.5 U	0.5 U/0.5 U
2,4-Dichlorophenol	mg/kg	0.6 U	0.6 U	0.6 U	0.6 U/0.6 U	0.6 U	0.5 U	0.5 U/0.5 U
2,5-Dichlorophenol	mg/kg	1.2 U	1.2 U	1.2 U	1.3 U/1.2 U	1.2 U	1.1 U	1.1 U/1.1 U
2,6-Dichlorophenol	mg/kg	0.6 U	0.6 U	0.6 U	0.6 U/0.6 U	0.6 U	0.5 U	0.5 U/0.5 U
2-Chlorophenol	mg/kg	0.6 U	0.6 U	0.6 U	0.6 U/0.6 U	0.6 U	0.5 U	0.5 U/0.5 U
3/4-Chlorophenol	mg/kg	2.4 U	2.4 U	2.4 U	2.6 U/2.4 U	2.4 U	2.2 U	2.1 U/2.2 U
alpha-BHC	mg/kg	0.02 U	0.05	0.02 UJ	0.03 U/0.02 U	0.02 U	0.02 U	0.09 J/0.02 UJ
beta-BHC	mg/kg	0.02 U	0.02 U	0.02 U	0.08/0.05	0.02 U	0.02 U	0.19 J/0.34
delta-BHC	mg/kg	0.02 U	0.02 U	0.02 U	0.03 U/0.02 U	0.02 U	0.02 U	0.02 U/0.02 U
gamma-BHC (lindane)	mg/kg	0.02 U	0.02 U	0.02 U	0.03 U/0.02 U	0.02 U	0.02 U	0.02 U/0.02 U
Hexachlorobenzene	mg/kg	0.02 U	0.04	0.02 U	0.03 U/0.02 U	0.02 U	0.02 U	4.2 J/1.4 J
Hexachlorobutadiene	mg/kg	0.02 U	0.05	0.02 U	0.04/0.02 U	0.05	0.02 U	0.12 J/0.02 U
Hexachloroethane	mg/kg	0.02 U	0.02 U	0.02 U	0.03 U/0.02 U	0.02 U	0.02 U	0.09 U
<b>Volatile Organic Compounds</b>								
1,1,1-Trichloroethane	mg/kg	0.04	0.0044 U	0.0042 U	0.0048 U/0.0042 U	0.0078 J	0.0049 U	0.0043 U/0.0046 U
1,2-Dichloroethane	mg/kg	0.03 U	0.0197	0.0249	0.0048 U/0.0042 U	0.0042 UJ	0.0049 U	0.0043 U/0.0046 U
1,2-Dichloropropane	mg/kg	0.1	0.0044 U	0.0042 U	0.0048 U/0.0042 U	0.0042 UJ	0.0049 U	0.0043 U/0.0046 U
Benzene	mg/kg	0.03 U	0.0044 U	0.0042 U	0.0048 U/0.0042 U	0.0042 UJ	0.0049 U	0.0043 U/0.0046 U
Carbon tetrachloride	mg/kg	8.58	0.101	0.108	0.93 J/0.05 J	1.8	0.0342	0.0043 U/0.0046 U
Chloroform (Trichloromethane)	mg/kg	11.3	0.0439	0.0477	0.51 J/0.05 J	0.55	0.0187	0.0043 U/0.0046 U
Chloromethane (Methyl chloride)	mg/kg	0.03 U	0.0044 U	0.0042 U	0.0048 U/0.0042 U	0.0042 UJ	0.0049 U	0.0043 U/0.0046 U
Methylene chloride	mg/kg	0.03 U	0.0044 U	0.0042 U	0.0048 U/0.0042 U	0.0042 UJ	0.0049 U	0.0043 U/0.0046 U
Tetrachloroethene	mg/kg	2.75	1.46	1	1.3 J/0.11 J	0.0042 UJ	0.0434	0.0043 U/0.0046 U
Trichloroethene	mg/kg	0.071	0.0221	0.0235	0.0498/0.045	0.0339 J	0.0049 U	0.0043 U/0.0046 U
Vinyl chloride	mg/kg	0.03 U	0.0044 U	0.0042 U	0.0048 U/0.0042 U	0.0042 UJ	0.0049 U	0.0043 U/0.0046 U
<b>General Chemistry</b>								
Chloride	mg/kg	63	900	1000	1300/880	1340	928	116/324
								122 J

Notes:

U Not Detected.

J Estimated Value

x/x Sample result/Duplicate result

Table A.2

**Summary of Groundwater Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	CPT-6-S2S3	CPT-6-S2S3	CPT-7-S1	CPT-7-S2S3	CPT-7-S2S3	CPT-8-S1	CPT-8-S2S3	CPT-8-S2S3	IW29	IW29	IW29
Sample ID:	WG-050912-AK-12	WG-050912-AK-13	WG-050912-AK-11	WG-050912-AK-09	WG-050912-AK-10	WG-051012-AK-19	WG-051012-AK-17	WG-051012-AK-18	GW-05172011-JH-IW29	WG-05182012-BS-IW29	WG-05162013-MC-IW29
Sample Date:	5/9/2012	5/9/2012	5/9/2012	5/9/2012	5/9/2012	5/10/2012	5/10/2012	5/10/2012	5/17/2011	5/18/2012	5/16/2013
<b>Parameters</b>											
<b>Units</b>											
<b>Herbicides</b>											
2,4-Dichlorophenoxyacetic acid (2,4-D)	µg/L	1.0 U	1.0 U	3.6	280	--	3.7	5.3	1.0 U	90	90
Pentachlorophenol	µg/L	0.5 U	0.5 U	7.7	55	--	0.5	1.6	0.9	4.1	4.5
<b>Semi-volatile Organic Compounds</b>											
2,3,4,5-Tetrachlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	--	5.6 U	5.0 U	15 U	5.3	5.1
2,3,4,6-Tetrachlorophenol	µg/L	5.0 U	5.0 U	5.0 U	17	--	5.6 U	5.0 U	15 U	5.3	5.1
2,4,5-Trichlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	--	5.6 U	5.0 U	15 U	5.0 U	5.0 U
2,4,6-Trichlorophenol	µg/L	5.0 U	5.0 U	39.5	96.8	--	5.6 U	5.0 U	15 U	44.3	42.0 J
2,4-Dichlorophenol	µg/L	5.0 U	5.0 U	32.3	34.1	--	5.6 U	5.0 U	15 U	60.2	52.9 J
2,5-Dichlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	--	5.6 U	5.0 U	15 U	5.0 U	5.0 U
2,6-Dichlorophenol	µg/L	5.0 U	5.0 U	5.2	5.0 U	--	5.6 U	5.0 U	15 U	13.4	11.9 J
2-Chlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	--	5.6 U	5.0 U	15 U	6.6	6.4 J
3/4-Chlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	--	5.6 U	5.0 U	15 U	6.1	5.0 UU
alpha-BHC	µg/L	0.039	0.11 U	2.5 U	1.1 U	0.4	0.014	0.106	0.058	0.43	0.32
beta-BHC	µg/L	6.67	0.95	8.3 U	3.7 U	4.7	0.152	5.51	0.74	0.52	0.74 U
delta-BHC	µg/L	0.1 U	0.5 U	10 U	5 U	0.8 U	0.05 U	0.05 U	0.06	0.5 U	1 U
gamma-BHC (lindane)	µg/L	0.10 U	0.52 U	12 U	5.2 U	0.78 U	0.052 U	0.092	0.052 U	0.52 U	1.0 U
Hexachlorobenzene	µg/L	0.20 U	1.0 U	25	10 U	1.5 U	0.10 U	0.10 U	0.17	1.0 U	2.0 U
Hexachlorobutadiene	µg/L	0.23	25.9	4 U	339	52.3	0.1	2.2	0.02 U	53	64.5
Hexachloroethane	µg/L	0.23	0.8	860	365	5.55	0.02	0.02 U	1.25	7.4	9
<b>Volatile Organic Compounds</b>											
1,1,1-Trichloroethane	µg/L	30 U	2 U	30 U	100 U	50 U	1 U	200 U	50 U	50 U	50 U
1,2-Dichloroethane	µg/L	30 U	2 U	30 U	100 U	50 U	1 U	200 U	50 U	120	90
1,2-Dichloropropane	µg/L	30 U	2 U	30 U	100 U	50 U	1	300	50 U	70	50
Benzene	µg/L	30 U	2 U	30 U	100 U	90	1 U	200 U	50 U	50 U	10.7
Carbon tetrachloride	µg/L	971	67	180	1300	100	120	12300	1320	1010	1060
Chloroform (Trichloromethane)	µg/L	240	104	1830	4820	2730	147	16100	1830	4290	3840
Chloromethane (Methyl chloride)	µg/L	30 U	2 U	30 U	100 U	50 U	1 U	200 U	50 U	50 U	2650
Methylene chloride	µg/L	30 U	2 U	50	100 U	150	2.8	200 U	50 U	620	520
Tetrachloroethylene	µg/L	501	8	440	1500	2320	17	2100	100	1940	2010
Trichloroethylene	µg/L	30 U	2 U	50	210	290	1	200 U	50 U	90	1200
Vinyl chloride	µg/L	30 U	2 U	30 U	100 U	50 U	1 U	200 U	50 U	50 U	86.3
<b>General Chemistry</b>											
Chloride	µg/L	220000	127000	1650000	1830000	--	403000	157000	--	1110000	1090000
											1150000 J

Notes:

- U Not Detected
- J Estimated Value
- R Rejected Result
- x/x Sample result/Duplicate result

Table A.2

**Summary of Groundwater Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	IW29	IW29	IW35A	IW35A	IW35A	IW35A	IW35A	IW35A	IW35B	IW35B	IW35B
Sample ID:	WG-05222014-JR-IW29	WG-06192015-AK-IW29	GW-05182011-JH-IW35A	WG-05172012-BS-IW35A	WG-05172013-MC-IW35A	WG-05222014-JR-IW35A	WG-06192015-AK-IW35A	GW-05182011-JH-IW35B	WG-05172012-BS-IW35B	WG-05172013-MC-IW35B	
Sample Date:	5/22/2014	6/19/2015	5/18/2011	5/17/2012	5/17/2013	5/22/2014	6/19/2015	5/18/2011	5/17/2012	5/17/2013	
<b>Parameters</b>											
	Units										
<b>Herbicides</b>											
2,4-Dichlorophenoxyacetic acid (2,4-D)	µg/L	13	64	1.0 U	1.0 U						
Pentachlorophenol	µg/L	12	14	0.5 U	0.7						
<b>Semi-volatile Organic Compounds</b>											
2,3,4,5-Tetrachlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,3,4,6-Tetrachlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,4,5-Trichlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,4,6-Trichlorophenol	µg/L	7.9	39.5	5.0 U	7	7.2	5.0 U				
2,4-Dichlorophenol	µg/L	5.0 U	53.1	5.0 U	14	30.8	12				
2,5-Dichlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,6-Dichlorophenol	µg/L	5.0 U	11.3	5.0 U	14.2	5.2					
2-Chlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
3/4-Chlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
alpha-BHC	µg/L	0.46	0.38	0.026 J	0.023	0.016	0.022	0.018	0.13	0.17	0.086
beta-BHC	µg/L	1.1 U	0.93 U	1.07 J	1.05	0.861	1.18	0.91	1.83	2.17	1.68
delta-BHC	µg/L	1 U	1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	0.2 U	0.1
gamma-BHC (lindane)	µg/L	1.5 U	1.3 U	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U	0.52 U	0.21 U	0.10 U
Hexachlorobenzene	µg/L	2.9 U	2.5 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U	0.40 U	0.20 U
Hexachlorobutadiene	µg/L	40.1	44.2	0.34 J	0.64	0.29	0.20 U	0.46	2.9	4	1.4
Hexachloroethane	µg/L	6.6	5.9	0.36 J	0.49	0.17	0.13	0.26	10.8	13.8	5.61
<b>Volatile Organic Compounds</b>											
1,1,1-Trichloroethane	µg/L	50 U	50 U	3 U	3 U	2 U	0.5 U	0.5 U	100 U	50 U	50 U
1,2-Dichloroethane	µg/L	60	80	3 U	3 U	2 U	0.5 U	0.5 U	100 U	50 U	50 U
1,2-Dichloropropane	µg/L	50 U	50 U	3 U	3 U	2 U	0.5 U	0.5 U	100 U	50 U	50 U
Benzene	µg/L	50 U	50 U	3 U	3 U	2 U	0.5 U	0.5 U	100 U	50 U	50 U
Carbon tetrachloride	µg/L	390	530	124	214	119	54.9	107	4240	3980	1960
Chloroform (Trichloromethane)	µg/L	1760	2260	120	150	106	60.3	88	6370	4150	2860
Chloromethane (Methyl chloride)	µg/L	50 U	50 U	3 U	3 U	2 U	0.5 U	0.5 U	100 U	50 U	50 U
Methylene chloride	µg/L	250	350	3 U	3 U	2 U	0.5 U	0.5 U	100 U	50 U	50 U
Tetrachloroethene	µg/L	760	1130	30	51.5	29	13.5	37.9	1400	1410	640
Trichloroethene	µg/L	50 U	70	3 U	3 U	2 U	0.9	2.2	100 U	70	50 U
Vinyl chloride	µg/L	50 U	50 U	3 U	3 U	2 U	0.5 U	0.5 U	100 U	50 U	50 U
<b>General Chemistry</b>											
Chloride	µg/L	970000	920000	168000	163000	170000 J	168000	177000	770000	743000	592000 J

Notes:

- U Not Detected
- J Estimated Value
- R Rejected Result
- x/x Sample result/Duplicate result

Table A.2

**Summary of Groundwater Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	IW35B	IW35B	MW113S3	MW113S3	MW113S3	MW113S3	MW113S3	MW113S3	MW114S1	MW114S1
Sample ID:	WG-05222014-JR-IW35B	WG-06192015-JR-IW35B	GW-05182011-JH-MW113S3	WG-05182012-AY-MW113S3	WG-05222013-DH-MW113S3	WG-05122014-JR-MW113S3	WG-06182015-JR-MW113S3	WG-05182011-JH-MW114S1	WG-05182012-AY-MW114S1	
Sample Date:	5/22/2014	6/19/2015	5/18/2011	5/18/2012	5/22/2013	5/12/2014	6/18/2015	5/18/2011	5/18/2012	
<b>Parameters</b>										
Herbicides	Units									
2,4-Dichlorophenoxyacetic acid (2,4-D)	µg/L	1.0 U	1.0 U	120	96 J	80	38	31	1.0 U	1.0 U
Pentachlorophenol	µg/L	0.5	0.5 U	230	120	81	7.3 J	21 J	0.5 U	0.5 U
<b>Semi-volatile Organic Compounds</b>										
2,3,4,5-Tetrachlorophenol	µg/L	5.0 U	5.0 U	186 J	100 J	47.1 J	5.0 U	8.3 J	5.0 U	5.0 U
2,3,4,6-Tetrachlorophenol	µg/L	5.0 U	5.0 U	186 J	100 J	47.1 J	9.7	8.3 J	5.0 U	5.0 U
2,4,5-Trichlorophenol	µg/L	5.0 U	5.0 U	R	R	R	5.0 U	R	5.0 U	5.0 U
2,4,6-Trichlorophenol	µg/L	5.0 U	5.0 U	280 J	126 J	63.4 J	19.9	24.2 J	5.0 U	5.0 U
2,4-Dichlorophenol	µg/L	5.5	5.0 U	40.8 J	R	8.4 J	5.6	16.2 J	5.0 U	5.0 U
2,5-Dichlorophenol	µg/L	5.0 U	5.0 U	R	R	R	5.0 U	R	5.0 U	5.0 U
2,6-Dichlorophenol	µg/L	5.0 U	5.0 U	R	R	R	5.0 U	R	5.0 U	5.0 U
2-Chlorophenol	µg/L	5.0 U	5.0 U	R	R	R	5.0 U	R	5.0 U	5.0 U
3/4-Chlorophenol	µg/L	5.0 U	5.0 U	R	R	R	5.0 U	R	5.0 U	5.0 U
alpha-BHC	µg/L	0.08	0.067	1.1 U	1.1 U	1.1 U	0.104 J	0.44 U	0.033	0.023
beta-BHC	µg/L	1.53	1.45	5	5.1	4.4	5.64 J	5.24	0.547	0.313
delta-BHC	µg/L	0.1 U	0.1 U	5 U	5 U	5 U	0.05 U	2 U	0.05 U	0.05 U
gamma-BHC (lindane)	µg/L	0.10 U	0.10 U	5.2 U	5.2 U	5.2 U	0.052 U	2.1 U	0.052 U	0.052 U
Hexachlorobenzene	µg/L	0.20 U	0.20 U	10 U	10 U	10 U	0.13 J	4.0 U	0.10 U	0.10 U
Hexachlorobutadiene	µg/L	1.3	2.6	87	103	98	95.8	82.7	0.02 U	0.02 U
Hexachloroethane	µg/L	4.7	2.34	252	261	230	203	136	0.02 U	0.02 U
<b>Volatile Organic Compounds</b>										
1,1,1-Trichloroethane	µg/L	50 U	10 U	1000 U	1000 U	500 U	1000 U	1000 U	0.5 U	0.5 U
1,2-Dichloroethane	µg/L	50 U	10 U	1000 U	1000 U	500 U	1000 U	1000 U	1.8	0.5 U
1,2-Dichloropropane	µg/L	50 U	10	3200	2000	1600	1000	1000 U	2	0.5 U
Benzene	µg/L	50 U	10 U	1000 U	1000 U	500 U	1000 U	2000 U	0.5 U	0.5 U
Carbon tetrachloride	µg/L	770	629	86500	62900	64700	52400	32900	0.5 U	0.5 U
Chloroform (Trichloromethane)	µg/L	950	1020	65300 J	41100	41100	45500	30800	1.2	0.5 U
Chloromethane (Methyl chloride)	µg/L	50 U	10 U	1000 U	1000 U	500 U	1000 U	1000 U	0.5 U	0.5 U
Me hylene chloride	µg/L	50 U	10 U	7800	4700	2400	1000 U	1000 U	0.5 U	0.5 U
Tetrachloroethene	µg/L	270	365	18000	13000	10600	11000	6600	9.3	4
Trichloroethene	µg/L	50 U	22	1000	1000 U	600	1000 U	1000 U	2.9	1.9
Vinyl chloride	µg/L	50 U	10 U	1000 U	1000 U	500 U	1000 U	1000 U	0.5 U	0.5 U
<b>General Chemistry</b>										
Chloride	µg/L	420000	360000	10100000	9500000	8600000	6500000	5800000	930000	1040000

Notes:

- U Not Detected
- J Estimated Value
- R Rejected Result
- x/x Sample result/Duplicate result

Table A.2

**Summary of Groundwater Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	MW114S1	MW114S1	MW114S1	CPT-1-S1	CPT-2-S1	CPT-2-S2S3	CPT-3-S1	CPT-3-S2S3	CPT-4-S1	CPT-4-S2S3	CPT-4-S2S3
Sample ID:	WG-05222013-DH-MW114S1	WG-05122014-JR-MW114S1	WG-06152015-JR-MW114S1	WG-050712-AK-01	WG-050812-AK-03	WG-050712-AK-02	WG-050812-AK-05	WG-050812-AK-04	WG-050912-AK-08	WG-050812-AK-06	WG-050812-AK-07
Sample Date:	5/22/2013	5/12/2014	6/15/2015	5/7/2012	5/8/2012	5/7/2012	5/8/2012	5/8/2012	5/9/2012	5/8/2012	5/8/2012
<b>Parameters</b>											
	Units										
<b>Herbicides</b>											
2,4-Dichlorophenoxyacetic acid (2,4-D)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	--	1.3 U	850	--	--	--
Pentachlorophenol	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	--	0.6 U	5 U	--	--	--
<b>Semi-volatile Organic Compounds</b>											
2,3,4,5-Tetrachlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	--	5.0 U
2,3,4,6-Tetrachlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	--	22.9
2,4,5-Trichlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	--	5.0 U
2,4,6-Trichlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U	242	--	--	881
2,4-Dichlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U	307	--	--	733
2,5-Dichlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	--	5.0 U
2,6-Dichlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U	82.7	--	--	234
2-Chlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U	14.4	--	--	54.2
3/4-Chlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U	9.6	--	--	63.6
alpha-BHC	µg/L	0.02	0.030 U	0.013	0.011 U	--	0.044	0.045	--	0.03	0.999 J
beta-BHC	µg/L	0.335	0.449	0.424	0.143	--	0.836	0.167	--	0.259	1.43 J
delta-BHC	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.37 J
gamma-BHC (lindane)	µg/L	0.052 U	0.052 U	0.052 U	0.052 U	--	0.052 U	0.052 U	--	0.052 U	0.383 J
Hexachlorobenzene	µg/L	0.10 U	0.10 U	0.10 U	0.10 U	--	0.10 U	0.10 U	--	0.10 U	0.10 U
Hexachlorobutadiene	µg/L	0.02 U	0.02 U	0.02 U	0.02 U	--	0.39	0.02 U	--	0.55	38.4
Hexachloroethane	µg/L	0.02 U	0.02 U	0.02 U	0.02 U	--	0.11	0.02 U	--	0.15	97.9
<b>Volatile Organic Compounds</b>											
1,1,1-Trichloroethane	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3 U	0.5 U	30 U	34	4400
1,2-Dichloroethane	µg/L	0.5	0.5 U	0.6	0.5 U	0.5 U	3 U	3.1	30 U	5 U	700
1,2-Dichloropropane	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3 U	0.5 U	30 U	5 U	500 U
Benzene	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3 U	11.9	30 U	5 U	500 U
Carbon tetrachloride	µg/L	0.5 U	0.5 U	0.5 U	0.7	0.5 U	68	2.8	100	75	18500
Chloroform (Trichloromethane)	µg/L	0.5 U	0.5 U	0.5 U	16	0.9	176 J	21.6	1370	259	31400
Chloroform (Methyl chloride)	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3 U	0.5 U	30 U	5 U	500 U
Methylene chloride	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3 U	0.5 U	30 U	54	2800 U
Tetrachloroethene	µg/L	2.6	3.8	3.2	1	0.5 U	5 9	11.6	93	362	25400
Trichloroethene	µg/L	1.9	1.4	1.7	0.5 U	0.5 U	3 U	4 8	30 U	14	1900
Vinyl chloride	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3 U	0.5 U	30 U	5 U	500 U
<b>General Chemistry</b>											
Chloride	µg/L	1180000	1140000	1090000	901000	--	182000	5500000	--	--	6300000

Notes:

- U Not Detected
- J Estimated Value
- R Rejected Result
- x/x Sample result/Duplicate result

Table A.2

**Summary of Groundwater Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	CPT-9-S1	CPT-9-S2S3	CPT-9-S2S3	MW18S1	MW18S1	MW18S1	MW18S1	MW18S3	MW18S3
Sample ID:	WG-051012-AK-16	WG-051012-AK-14	WG-051012-AK-15	WG-05212012-MC-MW18S1	WG-05292013-JR-MW18S1	WG-05212014-JR-MW18S1	WG-06182015-JR-MW18S1	GW-051911-JH-MW18S3	WG-05212012-MC-MW18S3
Sample Date:	5/10/2012	5/10/2012	5/10/2012	5/21/2012	5/29/2013	5/21/2014	6/18/2015	5/19/2011	5/21/2012
<b>Parameters</b>									
<b>Units</b>									
<b>Herbicides</b>									
2,4-Dichlorophenoxyacetic acid (2,4-D)	µg/L	1.0 U	--	3500	--	19	13	16 J	9.2
Pentachlorophenol	µg/L	0.5 U	--	120	--	570	440	670 J	47
<b>Semi-volatile Organic Compounds</b>									
2,3,4,5-Tetrachlorophenol	µg/L	5.0 U	50 U	5.0 U	--	154	5.0 U	133	37
2,3,4,6-Tetrachlorophenol	µg/L	5.0 U	697	52.8	--	154	135	133	91.1 J
2,4,5-Trichlorophenol	µg/L	5.0 U	50 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 UJ
2,4,6-Trichlorophenol	µg/L	5.0 U	801	5.0 U	--	163	153	171	31.3
2,4-Dichlorophenol	µg/L	5.0 U	296	5.0 U	--	43.6	38.2	52.6	5.0 U
2,5-Dichlorophenol	µg/L	5.0 U	50 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 UJ
2,6-Dichlorophenol	µg/L	5.0 U	50 U	5.0 U	--	15.5	13.9	16.5	5.0 U
2-Chlorophenol	µg/L	5.0 U	56	47.4	--	9.5	8.6	10.8	5.0 U
3/4-Chlorophenol	µg/L	5.0 U	50 U	77.2	--	5.0 U	5.0 U	5.0 UJ	5.0 U
alpha-BHC	µg/L	0.034	26.8	0.59	--	5.5 U	7.93	5.4	4.4 U
beta-BHC	µg/L	0.248	13.5	3.4	--	19 U	4.52	15 U	15 U
delta-BHC	µg/L	0.05 U	16	3 U	--	30 U	2.7	20 U	20 U
gamma-BHC (lindane)	µg/L	0.052 U	9.43	2.6 U	--	26 U	1.96	21 U	21 U
Hexachlorobenzene	µg/L	0.10 U	5.0 U	5.0 U	--	50 U	20	40 U	20 U
Hexachlorobutadiene	µg/L	0.55	1 U	175	--	230	150	160	150
Hexachloroethane	µg/L	0.04	203	2	--	1270	855	1120	774
<b>Volatile Organic Compounds</b>									
1,1,1-Trichloroethane	µg/L	1	5000 U	200 U	1000	2000	1000	1000	1000
1,2-Dichloroethane	µg/L	22.3	21000	200 U	500 U	1000 U	1000 U	1000 U	2000 U
1,2-Dichloropropane	µg/L	19	36000	200 U	500 U	1000 U	1000 U	1000 U	2000 U
Benzene	µg/L	1 U	5000 U	200	500 U	1000 U	1000 U	1000 U	2000 U
Carbon tetrachloride	µg/L	65.1	149000	200 U	98200	152000	160000	152000	125000
Chloroform (Trichloromethane)	µg/L	86.2	113000	18300	72500	81400	75200	72400	75300
Chloromethane (Methyl chloride)	µg/L	1 U	5000 U	200 U	500 U	1000 U	1000 U	1000 U	2000 U
Methylene chloride	µg/L	12	24000	1200	1800 U	2200	2000	2000	2000 U
Tetrachloroethene	µg/L	32.3	46000	1600	28200	38400	42900	45000	27200
Trichloroethene	µg/L	10	9000	200 U	800	1000	1000	1000	2000 U
Vinyl chloride	µg/L	1	5000 U	200 U	500 U	1000 U	1000 U	1000 U	2000 U
<b>General Chemistry</b>									
Chloride	µg/L	840000	--	8200000	--	703000	897000	500000	670000
Notes:									
U	Not Detected								
J	Estimated Value								
R	Rejected Result								
x/x	Sample result/Duplicate result								

Table A.2

**Summary of Groundwater Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	MW18S3	MW18S3	MW18S3	MW19S1	MW19S1	MW19S1	MW19S1	MW19S1	
Sample ID:	WG-052213-DH-MW18S3	WG-05212014-JR-MW18S3	WG-06182015-JR-MW18S3	GW-05182011-JH-MW19S1	WG-05212012-MC-MW19S1	WG-052213-DH-MW19S1	WG-05202014-JR-MW19S1	WG-06182015-JR-MW19S1	
Sample Date:	5/22/2013	5/21/2014	6/18/2015	5/18/2011	5/21/2012	5/22/2013	5/20/2014	6/18/2015	
<b>Parameters</b>		<b>Units</b>							
<b>Herbicides</b>									
2,4-Dichlorophenoxyacetic acid (2,4-D)	µg/L	10	3.7	1.3	1.0 U	1.0 U	6.4	3.6	1.0 U
Pentachlorophenol	µg/L	280	150	7.8 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
<b>Semi-volatile Organic Compounds</b>									
2,3,4,5-Tetrachlorophenol	µg/L	35.7	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,3,4,6-Tetrachlorophenol	µg/L	35.7	20.2	5.0 U	5.0 U	5.0 UJ	5.0 U	5.0 U	5.0 U
2,4,5-Trichlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 UJ	5.0 U	5.0 U	5.0 U
2,4,6-Trichlorophenol	µg/L	10.7	8.4	5.0 U	5.0 U	5.0 UJ	5.0 U	5.0 U	5.0 U
2,4-Dichlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 UJ	5.0 U	5.0 U	5.0 U
2,5-Dichlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 UJ	5.0 U	5.0 U	5.0 U
2,6-Dichlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 UJ	5.0 U	5.0 U	5.0 U
2-Chlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 UJ	5.0 U	5.0 U	5.0 U
3/4-Chlorophenol	µg/L	5.0 U	5.0 U	5.0 UJ	5.0 U	5.0 UJ	5.0 U	5.0 U	5.0 UJ
alpha-BHC	µg/L	6.7	2.8 U	0.892	0.55 U	0.028 U	0.11 U	0.22 U	0.22 U
beta-BHC	µg/L	15 U	7.4 U	13.7	1.9 U	0.263	0.37 U	0.74 U	23.4
delta-BHC	µg/L	20 U	10 U	0.18	3 U	0.1 U	0.5 U	1 U	1 U
gamma-BHC (lindane)	µg/L	21 U	10 U	0.266	2.6 U	0.13 U	0.52 U	1.0 U	1.0 U
Hexachlorobenzene	µg/L	40 U	20 U	0.26	5.0 U	1.7	1.0 U	2.0 U	3
Hexachlorobutadiene	µg/L	210	97	8.9	96.4	10.9	39.6	48.4	77
Hexachloroethane	µg/L	1410	349	123	131	4.97	45.5	36.5	117
<b>Volatile Organic Compounds</b>									
1,1,1-Trichloroethane	µg/L	2000 U	2000 U	1000 U	130	3.6	6.8	2 U	56
1,2-Dichloroethane	µg/L	2000 U	2000 U	1000 U	10	1	0.9	2 U	6
1,2-Dichloropropane	µg/L	2000 U	2000 U	1000 U	10 U	1 U	0.5 U	2 U	5 U
Benzene	µg/L	2000 U	2000 U	1000 U	10 U	1 U	0.5 U	2 U	5 U
Carbon tetrachloride	µg/L	96700	74300	28500	2000	63.7	176	62.6	830
Chloroform (Trichloromethane)	µg/L	35000	62200	15000	961	64	48.6	30	482
Chloromethane (Methyl chloride)	µg/L	2000 U	2000 U	1000 U	10 U	1 U	0.5 U	2 U	5 U
Methylene chloride	µg/L	2000 U	2000 U	1000 U	10 U	1 U	0.5 U	2 U	5 U
Tetrachloroethene	µg/L	35000	16000	6100	1360	61.9	434	287	1290 J
Trichloroethene	µg/L	2000 U	2000 U	1000 U	46	2.3	8.8	3	33
Vinyl chloride	µg/L	2000 U	2000 U	1000 U	10 U	1 U	0.5 U	2 U	5 U
<b>General Chemistry</b>									
Chloride	µg/L	440000	650000	152000	1290000	1190000	1010000	958000	810000

Notes:

U Not Detected

J Estimated Value

R Rejected Result

x/x Sample result/Duplicate result

Table A.2

**Summary of Groundwater Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	MW19S2	MW19S2	MW19S2	MW19S4	MW19S4	MW27S1	MW27S1	MW27S1	MW27S1	
Sample ID:	WG-052313-DH-MW19S2	WG-05212014-JR-MW19S2	WG-06182015-JR-MW19S2	WG-05212014-JR-MW19S4	WG-06182015-JR-MW19S4	GW-051911-JH-MW27S1	WG-110911-RB-MW27S1	WG-05212012-MC-MW27S1	WG-052313-DH-MW27S1	
Sample Date:	5/23/2013	5/21/2014	6/18/2015	5/21/2014	6/18/2015	5/19/2011	11/9/2011	5/21/2012	5/23/2013	
<b>Parameters</b>										
<b>Units</b>										
<b>Herbicides</b>										
2,4-Dichlorophenoxyacetic acid (2,4-D)	µg/L	1700	1900	1.0 U	2.0 U	R	1.0 U	1.7	--	1.0 U
Pentachlorophenol	µg/L	6.9 J	12 J	0.5 UJ	3.2	3.8 J	2.1	1.5	--	2.9
<b>Semi-volatile Organic Compounds</b>										
2,3,4,5-Tetrachlorophenol	µg/L	5.0 UJ	5.0 U	5.0 U	5.0 U	5.7	5.0 U	5.0 U	--	5.0 U
2,3,4,6-Tetrachlorophenol	µg/L	5.0 UJ	9.8	5.0 U	5.9	5.7	5.0 U	5.0 U	--	5.0 U
2,4,5-Trichlorophenol	µg/L	5.0 UJ	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
2,4,6-Trichlorophenol	µg/L	250 J	521	5.0 U	6.1	5.0 U	5.0 U	5.0 U	--	6.1
2,4-Dichlorophenol	µg/L	122 J	369	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
2,5-Dichlorophenol	µg/L	5.0 UJ	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
2,6-Dichlorophenol	µg/L	39.0 J	103	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
2-Chlorophenol	µg/L	12.8 J	35.2	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
3/4-Chlorophenol	µg/L	5.7 J	28.2	5.0 UJ	5.0 U	5.0 UJ	5.0 U	5.0 U	--	5.0 U
alpha-BHC	µg/L	2.2 U	3.3 U	2.2 U	1.13	28 U	1.1 U	2.2 U	--	5.5 U
beta-BHC	µg/L	20	22.8	37.5	5.43	93 U	3.7 U	7.4 U	--	19 U
delta-BHC	µg/L	10 U	10 U	10 U	0.5 U	100 U	5 U	10 U	--	30 U
gamma-BHC (lindane)	µg/L	10 U	10 U	10 U	1.93	130 U	5.2 U	10 U	--	26 U
Hexachlorobenzene	µg/L	20 U	607	110	250 U	250 U	10 U	20 U	--	50 U
Hexachlorobutadiene	µg/L	479	308	58	6430	4040	427	769	--	1800
Hexachloroethane	µg/L	328	265	219	1300	1500	210	219	--	310
<b>Volatile Organic Compounds</b>										
1,1,1-Trichloroethane	µg/L	300 U	50 U	210	1300	1100	2 U	2 U	3 U	2 U
1,2-Dichloroethane	µg/L	300 U	50 U	50 U	500 U	500 U	2 U	2 U	3 U	2 U
1,2-Dichloropropane	µg/L	300 U	50 U	50 U	500 U	500 U	2 U	2 U	3 U	2 U
Benzene	µg/L	300 U	90	50 U	500 U	500 U	2 U	2	3 U	2 U
Carbon tetrachloride	µg/L	2500	2490	5510	21000	18500	17	20	12	14
Chloroform (Trichloromethane)	µg/L	970	5360	2030	19300	16100	5.7	11	5.2	32
Chloromethane (Methyl chloride)	µg/L	300 U	50 U	50 U	500 U	500 U	2 U	2 U	3 U	2 U
Methylene chloride	µg/L	300 U	150	50 U	500 U	500 U	2 U	2 U	3 U	2 U
Tetrachloroethene	µg/L	4500	5430	3170	7900	5800	150	157	139	279
Trichloroethene	µg/L	400	760	260	700	500	6.9	9.6	5	23
Vinyl chloride	µg/L	300 U	50 U	50 U	500 U	500 U	2 U	2 U	3 U	2 U
<b>General Chemistry</b>										
Chloride	µg/L	5340000	8830000	1580000	3140000	3390000	153000	159000	--	166000

Notes:

U Not Detected

J Estimated Value

R Rejected Result

x/x Sample result/Duplicate result

Table A.2

**Summary of Groundwater Analytical Results**  
**Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	MW27S1	MW27S1	MW27S2	MW27S2	MW27S2	MW27S2	MW27S2	MW27S2
Sample ID:	WG-06112014-JR-MW27S1	WG-06182015-AK-MW27S1	GW-051911-JH-MW27S2	WG-05212012-MC-MW27S2	WG-052313-DH-MW27S2	WG-06112014-JR-MW27S2	WG-06182015-AK-MW27S2	WG-06182015-AK-MW27S2
Sample Date:	6/11/2014	6/18/2015	5/19/2011	5/21/2012	5/23/2013	6/11/2014	6/18/2015	6/18/2015
<b>Parameters</b>		<b>Units</b>						
<b>Herbicides</b>								
2,4-Dichlorophenoxyacetic acid (2,4-D)	µg/L	10 U	1.0 U	1.0 U	--	2.5 J	1.7	2.0 J
Pentachlorophenol	µg/L	3.8	0.5 UJ	1.5	--	2.5	26	1.5 J
<b>Semi-volatile Organic Compounds</b>								
2,3,4,5-Tetrachlorophenol	µg/L	50 U	5.0 U	5.0 U	--	50 U	5.0 U	50 U
2,3,4,6-Tetrachlorophenol	µg/L	50 U	5.0 U	5.0 U	--	50 U	5.0 U	50 U
2,4,5-Trichlorophenol	µg/L	50 U	5.0 U	5.0 U	--	50 U	5.0 U	50 U
2,4,6-Trichlorophenol	µg/L	50 U	5.0 U	5.0 U	--	9.7	5.0 U	5.0 U
2,4-Dichlorophenol	µg/L	50 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U
2,5-Dichlorophenol	µg/L	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U
2,6-Dichlorophenol	µg/L	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U
2-Chlorophenol	µg/L	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U
3/4-Chlorophenol	µg/L	5.0 U	5.0 UJ	5.0 U	--	5.0 U	5.0 U	5.0 UJ
alpha-BHC	µg/L	2.2 U	2.2 U	2.8 U	--	55 U	4.4 U	11 U
beta-BHC	µg/L	7.4 U	7.4 U	9.3 U	--	190 U	15 U	37 U
delta-BHC	µg/L	10 U	10 U	10 U	--	300 U	20 U	50 U
gamma-BHC (lindane)	µg/L	10 U	10 U	13 U	--	260 U	21 U	52 U
Hexachlorobenzene	µg/L	20 U	20 U	25 U	--	500 U	596	230
Hexachlorobutadiene	µg/L	599	397	988	--	17800	2510	1900
Hexachloroethane	µg/L	170	130	498	--	2200	1030	990
<b>Volatile Organic Compounds</b>								
1,1,1-Trichloroethane	µg/L	2 U	5 U	5 U	5 U	5 U	5 U	10 U
1,2-Dichloroethane	µg/L	2 U	5 U	5 U	5 U	5 U	5 U	10 U
1,2-Dichloropropane	µg/L	2 U	5 U	5 U	5 U	5 U	5 U	10 U
Benzene	µg/L	2 U	5 U	5 U	5 U	5 U	5 U	10 U
Carbon tetrachloride	µg/L	2 U	5 U	15	19	60	165	130
Chloroform (Trichloromethane)	µg/L	42.7	7	5	6	15	39	10
Chloromethane (Methyl chloride)	µg/L	2 U	5 U	5 U	5 U	5 U	5 U	10 U
Me hylene chloride	µg/L	9.1	5 U	5 U	5 U	5 U	8	10 U
Tetrachloroethene	µg/L	173	158	184	269	407	546	661
Trichloroethene	µg/L	49.7	30	5 U	5 U	13	45	25
Vinyl chloride	µg/L	2 U	5 U	5 U	5 U	5 U	5 U	10 U
<b>General Chemistry</b>								
Chloride	µg/L	179000	190000	220000	--	228000	244000	254000

Notes:

- U Not Detected
- J Estimated Value
- R Rejected Result
- x/x Sample result/Duplicate result

Table A.3

**Summary of Soil Analytical Results**  
**Non-Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	AR-11	AR-11	AR-12	AR-12	FD-1	FD-2	FD-3	FD-4	NA-01	NA-02
Sample ID:	S-040612-AK-153	S-040612-AK-154	S-040912-AK-156	S-040912-AK-155	S-12112012-JR-001	S-12112012-JR-002	S-12112012-JR-003	S-12112012-JR-005	S-072513-AK-029	S-072513-AK-030
Sample Date:	4/6/2012	4/6/2012	4/9/2012	4/9/2012	12/11/2012	12/11/2012	12/11/2012	12/11/2012	7/25/2013	7/25/2013
Sample Depth:	(5-7) ft BGS	(29-31) ft BGS	(5-7) ft BGS	(29-31) ft BGS	(15-16) ft BGS	(15-16) ft BGS	(15-16) ft BGS	(15-16) ft BGS	(5-7) ft BGS	(5-7) ft BGS
<b>Parameters</b>										Units
<b>Herbicides</b>										
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.02 UJ	0.03 U	0.02 U	0.02 UJ	--	--	--	--	0.03 U
Pentachlorophenol	mg/kg	0.02 UJ	0.03 U	0.02 U	0.02 UJ	--	--	--	--	0.03 U
<b>Semi-volatile Organic Compounds</b>										
2,3,4,5-Tetrachlorophenol	mg/kg	2.3 U	2.7 U	2.3 U	2.1 U	--	--	--	--	2.5 U
2,3,4,6-Tetrachlorophenol	mg/kg	2.3 U	2.7 U	2.3 U	2.1 U	--	--	--	--	2.5 U
2,4,5-Trichlorophenol	mg/kg	0.6 U	0.7 U	0.6 U	0.5 U	--	--	--	--	0.6 U
2,4,6-Trichlorophenol	mg/kg	0.6 U	0.7 U	0.6 U	0.5 U	--	--	--	--	0.6 U
2,4-Dichlorophenol	mg/kg	0.6 U	0.7 U	0.6 U	0.5 U	--	--	--	--	0.6 U
2,5-Dichlorophenol	mg/kg	1.2 U	1.4 U	1.2 U	1.0 U	--	--	--	--	1.3 U
2,6-Dichlorophenol	mg/kg	0.6 U	0.7 U	0.6 U	0.5 U	--	--	--	--	0.6 U
2-Chlorophenol	mg/kg	0.6 U	0.7 U	0.6 U	0.5 U	--	--	--	--	0.6 U
3/4-Chlorophenol	mg/kg	2.3 U	2.7 U	2.3 U	2.1 U	--	--	--	--	2.5 U
alpha-BHC	mg/kg	0.02 U	0.03 U	0.02 U	0.02 U	--	--	--	--	0.03 U
beta-BHC	mg/kg	0.02 U	0.03 U	0.02 U	0.02 U	--	--	--	--	0.03 U
delta-BHC	mg/kg	0.02 U	0.03 U	0.02 U	0.02 U	--	--	--	--	0.03 U
gamma-BHC (lindane)	mg/kg	0.02 U	0.03 U	0.02 U	0.02 U	--	--	--	--	0.03 U
Hexachlorobenzene	mg/kg	0.02 U	0.03 U	0.02 U	0.02 U	--	--	--	--	0.03 U
Hexachlorobutadiene	mg/kg	0.02 U	0.03 U	0.02 U	0.02 U	--	--	--	--	0.03 U
Hexachloroethane	mg/kg	0.02 U	0.03 U	0.02 U	0.02 U	--	--	--	--	0.02 U
<b>Volatile Organic Compounds</b>										
1,1,1-Trichloroethane	mg/kg	0.0045 U	0.0068 U	0.0047 U	0.0051 U	--	--	--	--	0.0043 U
1,2-Dichloroethane	mg/kg	0.0045 U	0.0068 U	0.0047 U	0.0051 U	--	--	--	--	0.0043 U
1,2-Dichloropropane	mg/kg	0.0045 U	0.0068 U	0.0047 U	0.0051 U	--	--	--	--	0.0043 U
Benzene	mg/kg	0.0045 U	0.0068 U	0.0047 U	0.0051 U	0.0039 U	0.0051 U	0.0041 U/0.0041 U	0.0044 U	0.0043 U
Carbon tetrachloride	mg/kg	0.0359	0.0068 U	0.0047 U	0.0051 U	--	--	--	--	0.0043 U
Chloroform (Trichloromethane)	mg/kg	0.0408	0.0068 U	0.0047 U	0.0051 U	--	--	--	--	0.0043 U
Chloromethane (Methyl chloride)	mg/kg	0.0045 U	0.0068 U	0.0047 U	0.0051 U	--	--	--	--	0.0043 U
Methylene chloride	mg/kg	0.0045 U	0.0068 U	0.0047 U	0.0051 U	--	--	--	--	0.0043 U
Tetrachloroethene	mg/kg	0.0119	0.0068 U	0.0047 U	0.0051 U	--	--	--	--	0.0043 U
Trichloroethene	mg/kg	0.0045 U	0.0068 U	0.0047 U	0.0051 U	--	--	--	--	0.0043 U
Vinyl chloride	mg/kg	0.0045 U	0.0068 U	0.0047 U	0.0051 U	--	--	--	--	0.0043 U
<b>General Chemistry</b>										
Chloride	mg/kg	32	43	850	11	--	--	--	--	120
										28

**Notes**

- U Not Detected
- J Estimated Value
- x/x Sample result/Duplicate result

Table A.3

**Summary of Soil Analytical Results**  
**Non-Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	RA-1	RA-2	RA-3	RA-4	RA-5	RA-6	SO-1	SO-3	SO-3	SO-4
Sample ID:	S-06232015-JR-001	S-06232015-JR-004	S-06232015-JR-002	S-06232015-JR-003	S-06232015-JR-005	S-06232015-JR-006	S-072313-AK-009	S-072413-AK-020	S-072413-AK-019	S-072413-AK-021
Sample Date:	6/23/2015	6/23/2015	6/23/2015	6/23/2015	6/23/2015	6/23/2015	7/23/2013	7/24/2013	7/24/2013	7/24/2013
Sample Depth:	(1.5-2) ft BGS	(25-27) ft BGS	(15-17) ft BGS	(25-27) ft BGS	(5-7) ft BGS					
<b>Parameters</b>										Units
<b>Herbicides</b>										
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.03 U	0.02 U	0.03 U	0.03 U	0.03 U	0.02 U	0.02 U	0.02 U	0.02 U
Pentachlorophenol	mg/kg	0.03 U	0.02 U	0.03 U	0.03 U	0.03 U	0.02 U	0.02 U	0.02 U	0.02 U
<b>Semi-volatile Organic Compounds</b>										
2,3,4,5-Tetrachlorophenol	mg/kg	2.5 U	2.5 U	2.5 U	2.7 U	2.5 U	2.1 U	2.3 U	2.1 U	2.5 U
2,3,4,6-Tetrachlorophenol	mg/kg	2.5 U	2.5 U	2.5 U	2.7 U	2.5 U	2.6 U	2.1 U	2.3 U	2.5 U
2,4,5-Trichlorophenol	mg/kg	0.6 U	0.6 U	0.6 U	0.7 U	0.6 U	0.6 U	0.5 U	0.6 U	0.6 U
2,4,6-Trichlorophenol	mg/kg	0.6 U	0.6 U	0.6 U	0.7 U	0.6 U	0.6 U	0.5 U	0.6 U	0.6 U
2,4-Dichlorophenol	mg/kg	0.6 U	0.6 U	0.6 U	0.7 U	0.6 U	0.5 U	0.6 U	0.5 U	0.6 U
2,5-Dichlorophenol	mg/kg	1.3 U	1.2 U	1.3 U	1.3 U	1.3 U	1.0 U	1.2 U	1.1 U	1.2 U
2,6-Dichlorophenol	mg/kg	0.6 U	0.6 U	0.6 U	0.7 U	0.6 U	0.5 U	0.6 U	0.5 U	0.6 U
2-Chlorophenol	mg/kg	0.6 U	0.6 U	0.6 U	0.7 U	0.6 U	0.5 U	0.6 U	0.5 U	0.6 U
3/4-Chlorophenol	mg/kg	2.5 U	2.5 U	2.5 U	2.7 U	2.5 U	2.6 U	2.1 U	2.3 U	2.1 U
alpha-BHC	mg/kg	0.03 U	0.02 U	0.03 U	0.03 U	0.03 U	0.02 U	0.02 U	0.02 U	0.02 U
beta-BHC	mg/kg	0.03 U	0.02 U	0.03 U	0.03 U	0.03 U	0.16	0.02 U	0.05	0.02 U
delta-BHC	mg/kg	0.03 U	0.02 U	0.03 U	0.03 U	0.03 U	0.02 U	0.02 U	0.02 U	0.02 U
gamma-BHC (lindane)	mg/kg	0.03 U	0.02 U	0.03 U	0.03 U	0.03 U	0.02 U	0.02 U	0.02 U	0.02 U
Hexachlorobenzene	mg/kg	0.03 U	0.02 U	0.03 U	0.03 U	0.03 U	0.02 U	0.02 U	0.02 U	0.02 U
Hexachlorobutadiene	mg/kg	0.03 U	0.02 U	0.03 U	0.03 U	0.03 U	0.02 U	0.05	0.02 U	0.02 U
Hexachloroethane	mg/kg	0.03 U	0.02 U	0.03 U	0.03 U	0.03 U	0.02 U	0.02 U	0.02 U	0.02 U
<b>Volatile Organic Compounds</b>										
1,1,1-Trichloroethane	mg/kg	0.0048 U	0.0045 U	0.0048 U	0.0052 U	0.0051 U	0.005 U	0.0046 U	0.02 U	0.03 U
1,2-Dichloroethane	mg/kg	0.0048 U	0.0045 U	0.0048 U	0.0052 U	0.0051 U	0.005 U	0.0046 U	0.02 U	0.03 U
1,2-Dichloropropane	mg/kg	0.0048 U	0.0045 U	0.0048 U	0.0052 U	0.0051 U	0.005 U	0.0046 U	0.02 U	0.03 U
Benzene	mg/kg	0.0048 U	0.0045 U	0.0048 U	0.0052 U	0.0051 U	0.005 U	0.0046 U	0.02 U	0.03 U
Carbon tetrachloride	mg/kg	0.0048 U	0.0045 U	0.0048 U	0.0052 U	0.0051 U	0.005 U	0.0046 U	0.3	0.03 U
Chloroform (Trichloromethane)	mg/kg	0.0048 U	0.0045 U	0.0048 U	0.0052 U	0.0051 U	0.005 U	0.0058	0.092	0.03 U
Chloromethane (Methyl chloride)	mg/kg	0.0048 U	0.0045 U	0.0048 U	0.0052 U	0.0051 U	0.005 U	0.0046 U	0.02 U	0.03 U
Methylene chloride	mg/kg	0.0048 U	0.0045 U	0.0048 U	0.0052 U	0.0051 U	0.005 U	0.0046 U	0.02 U	0.03 U
Tetrachloroethene	mg/kg	0.0048 U	0.0045 U	0.0048 U	0.0052 U	0.0051 U	0.005 U	0.0118	16.2	0.03 U
Trichloroethene	mg/kg	0.0048 U	0.0045 U	0.0048 U	0.0052 U	0.0051 U	0.005 U	0.0046 U	0.2	0.03 U
Vinyl chloride	mg/kg	0.0048 U	0.0045 U	0.0048 U	0.0052 U	0.0051 U	0.005 U	0.0046 U	0.02 U	0.03 U
<b>General Chemistry</b>										
Chloride	mg/kg	13 U	12 U	13 U	14	13 U	13 U	10 U	50	11 U
										406

## Notes

- U Not Detected
- J Estimated Value
- x/x Sample result/Duplicate result

Table A.3

**Summary of Soil Analytical Results**  
**Non-Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	SO-4	SO-4	SO-6	SO-6	SW-1	SW-2	SW-2	SW-3	SW-4	SW-5
Sample ID:	S-072413-AK-022	S-072413-AK-024	S-072513-AK-027	S-072513-AK-028	S-12122012-JR-007	S-12122012-JR-011	S-12122012-JR-012	S-12122012-JR-008	S-12122012-JR-010	S-12132012-JR-018
Sample Date:	7/24/2013	7/24/2013	7/25/2013	7/25/2013	12/12/2012	12/12/2012	12/12/2012	12/12/2012	12/12/2012	12/13/2012
Sample Depth:	(15-17) ft BGS	(25-26) ft BGS	(5-7) ft BGS	(23.5-25.5) ft BGS	(18-19) ft BGS	(5-6) ft BGS	(19-20) ft BGS	(19-20) ft BGS	(18-19) ft BGS	(6-7) ft BGS
<b>Parameters</b>										Units
<b>Herbicides</b>										
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.02 U/0.02 U	--	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U
Pentachlorophenol	mg/kg	0.08/0.04	--	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U
<b>Semi-volatile Organic Compounds</b>										
2,3,4,5-Tetrachlorophenol	mg/kg	2.2 U/2.2 U	--	2.5 U	2.1 U	2.3 U	2.3 U	2.9 U	2.2 U	2.3 U
2,3,4,6-Tetrachlorophenol	mg/kg	2.2 U/2.2 U	--	2.5 U	2.1 U	2.3 U	2.3 U	2.9 U	2.2 U	2.3 U
2,4,5-Trichlorophenol	mg/kg	0.6 U/0.6 U	--	0.6 U	0.5 U	0.6 U	0.6 U	0.7 U	0.5 U	0.6 U
2,4,6-Trichlorophenol	mg/kg	0.6 U/0.6 U	--	0.6 U	0.5 U	0.6 U	0.6 U	0.7 U	0.5 U	0.6 U
2,4-Dichlorophenol	mg/kg	0.6 U/0.6 U	--	0.6 U	0.5 U	0.6 U	0.6 U	0.7 U	0.5 U	0.6 U
2,5-Dichlorophenol	mg/kg	1.1 U/1.1 U	--	1.2 U	1.0 U	1.1 U	1.1 U	1.4 U	1.1 U	1.1 U
2,6-Dichlorophenol	mg/kg	0.6 U/0.6 U	--	0.6 U	0.5 U	0.6 U	0.6 U	0.7 U	0.5 U	0.6 U
2-Chlorophenol	mg/kg	0.6 U/0.6 U	--	0.6 U	0.5 U	0.6 U	0.6 U	0.7 U	0.5 U	0.6 U
3/4-Chlorophenol	mg/kg	2.2 U/2.2 U	--	2.5 U	2.1 U	2.3 U	2.3 U	2.9 U	2.2 U	2.3 U
alpha-BHC	mg/kg	0.03/0.03	--	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U
beta-BHC	mg/kg	0.11/0.10	--	0.09	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U
delta-BHC	mg/kg	0.02 U/0.02 U	--	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U
gamma-BHC (lindane)	mg/kg	0.02 U/0.02 U	--	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U
Hexachlorobenzene	mg/kg	7.8/4.2	--	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U
Hexachlorobutadiene	mg/kg	0.24/0.19	--	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U
Hexachloroethane	mg/kg	0.13/0.11	--	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U
<b>Volatile Organic Compounds</b>										
1,1,1-Trichloroethane	mg/kg	0.02 U/0.03 U	0.02 U	0.03 U	0.02 U	0.0043 U	0.0067 U	0.0072 U	0.0042 U	0.0039 U
1,2-Dichloroethane	mg/kg	0.02 U/0.03 U	0.02 U	0.03 U	0.02 U	0.0043 U	0.0067 U	0.0072 U	0.0042 U	0.0039 U
1,2-Dichloropropane	mg/kg	0.02 U/0.03 U	0.02 U	0.03 U	0.02 U	0.0043 U	0.0067 U	0.0072 U	0.0042 U	0.0039 U
Benzene	mg/kg	0.02 U/0.03 U	0.02 U	0.03 U	0.02 U	0.0043 U	0.0067 U	0.0072 U	0.0042 U	0.0039 U
Carbon tetrachloride	mg/kg	0.51 J/0.13 J	0.987	0.098	0.02 U	0.0043 U	0.0067 U	0.0072 U	0.0042 U	0.0039 U
Chloroform (Trichloromethane)	mg/kg	0.48 J/0.05 J	1.17	0.54	0.04	0.0043 U	0.0067 U	0.0072 U	0.0042 U	0.0039 U
Chloromethane (Methyl chloride)	mg/kg	0.02 U/0.03 U	0.02 U	0.03 U	0.02 U	0.0043 U	0.0067 U	0.0072 U	0.0042 U	0.0039 U
Methylene chloride	mg/kg	0.02 U/0.03 U	0.02 U	0.04	0.02 U	0.0043 U	0.0067 U	0.0072 U	0.0042 U	0.0039 U
Tetrachloroethene	mg/kg	31.7/18.4	0.5	0.13	0.02 U	0.0043 U	0.0067 U	0.0072 U	0.0042 U	0.0039 U
Trichloroethene	mg/kg	0.02 U/0.03 U	0.02 U	0.03 U	0.02 U	0.0043 U	0.0067 U	0.0072 U	0.0042 U	0.0039 U
Vinyl chloride	mg/kg	0.02 U/0.03 U	0.02 U	0.03 U	0.02 U	0.0043 U	0.0067 U	0.0072 U	0.0042 U	0.0039 U
<b>General Chemistry</b>										
Chloride	mg/kg	285/251	--	150	26	266	14	14 U	100	66
										362

**Notes**

U Not Detected  
J Estimated Value  
x/x Sample result/Duplicate result

Table A.3

**Summary of Soil Analytical Results**  
**Non-Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	SW-5	SW-6	SW-7	SW-8	SW-13	SW-14
Sample ID:	S-12132012-JR-019	S-12122012-JR-014	S-12132012-JR-016	S-12132012-JR-017	S-12142012-JR-033	S-12142012-JR-032
Sample Date:	12/13/2012	12/12/2012	12/13/2012	12/13/2012	12/14/2012	12/14/2012
Sample Depth:	(10-11) ft BGS	(10-11) ft BGS	(10-11) ft BGS	(10-11) ft BGS	(0-0.5) ft BGS	(0-0.5) ft BGS
<b>Parameters</b>						
<b>Units</b>						
<b>Herbicides</b>						
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.02 U	0.02 U	0.02 U	0.06 U	0.03 U
Pentachlorophenol	mg/kg	0.02 U	0.02 U	0.02 U	0.06 U	0.03 U
<b>Semi-volatile Organic Compounds</b>						
2,3,4,5-Tetrachlorophenol	mg/kg	2.3 U	2.4 U	2.4 U	2.8 U	2.8 U
2,3,4,6-Tetrachlorophenol	mg/kg	2.3 U	2.4 U	2.4 U	2.8 U	2.8 U
2,4,5-Trichlorophenol	mg/kg	0.6 U	0.6 U	0.6 U	0.7 U	0.7 U
2,4,6-Trichlorophenol	mg/kg	0.6 U	0.6 U	0.6 U	0.7 U	0.7 U
2,4-Dichlorophenol	mg/kg	0.6 U	0.6 U	0.6 U	0.7 U	0.7 U
2,5-Dichlorophenol	mg/kg	1.2 U	1.2 U	1.2 U	1.4 U	1.4 U
2,6-Dichlorophenol	mg/kg	0.6 U	0.6 U	0.6 U	0.7 U	0.7 U
2-Chlorophenol	mg/kg	0.6 U	0.6 U	0.6 U	0.7 U	0.7 U
3/4-Chlorophenol	mg/kg	2.3 U	2.4 U	2.4 U	2.8 U	2.8 U
alpha-BHC	mg/kg	0.02 U	0.02 U	0.02 U	0.03 U	0.03 U
beta-BHC	mg/kg	0.02 U	0.02 U	0.02 U	0.03	0.1
delta-BHC	mg/kg	0.02 U	0.02 U	0.02 U	0.03 U	0.03 U
gamma-BHC (lindane)	mg/kg	0.02 U	0.02 U	0.02 U	0.03 U	0.03 U
Hexachlorobenzene	mg/kg	0.02 U	0.02 U	0.02 U	0.07	0.31
Hexachlorobutadiene	mg/kg	0.02 U	0.02 U	0.02 U	0.03 U	0.03 U
Hexachloroethane	mg/kg	0.02 U	0.02 U	0.02 U	0.03 U	0.03 U
<b>Volatile Organic Compounds</b>						
1,1,1-Trichloroethane	mg/kg	0.0058 U	0.0045 U	0.0041 U	0.0043 U	0.0062 U
1,2-Dichloroethane	mg/kg	0.0058 U	0.0045 U	0.0041 U	0.0043 U	0.0062 U
1,2-Dichloropropane	mg/kg	0.0058 U	0.0045 U	0.0041 U	0.0043 U	0.0062 U
Benzene	mg/kg	0.0058 U	0.0045 U	0.0041 U	0.0043 U	0.0062 U
Carbon tetrachloride	mg/kg	0.0058 U	0.0045 U	0.0041 U	0.0043 U	0.0062 U
Chloroform (Trichloromethane)	mg/kg	0.0058 U	0.0045 U	0.0041 U	0.0043 U	0.0062 U
Chloromethane (Methyl chloride)	mg/kg	0.0058 U	0.0045 U	0.0041 U	0.0043 U	0.0062 U
Methylene chloride	mg/kg	0.0058 U	0.0045 U	0.0041 U	0.0043 U	0.0062 U
Tetrachloroethene	mg/kg	0.0058 U	0.0045 U	0.0041 U	0.0043 U	0.0062 U
Trichloroethene	mg/kg	0.0058 U	0.0045 U	0.0041 U	0.0043 U	0.0062 U
Vinyl chloride	mg/kg	0.0058 U	0.0045 U	0.0041 U	0.0043 U	0.0062 U
<b>General Chemistry</b>						
Chloride	mg/kg	67	12 U	226	316	59
						90

**Notes**

U Not Detected

J Estimated Value

x/x Sample result/Duplicate result

Table A.4

**Summary of Groundwater Analytical Results**  
**Non-Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location	GP-40	GP-41	GP-42	GP-43	MW147S2/S3	MW147S2/S3
Sample ID	WG-09142012-JR-029	WG-09142012-JR-030	WG-09142012-JR-031	WG-09142012-JR-032	WG-11092014-AK-MW147S2/S3	WG-06172015-JR-MW147S2/S3
Sample Date	9/14/2012	9/14/2012	9/14/2012	9/14/2012	11/9/2014	6/17/2015
<b>Parameters</b>		<b>Units</b>				
<b>Volatile Organic Compounds</b>						
1,1,1-Trichloroethane	µg/L	0.5 U	0.5 U	1 UJ	0.5 U	0.5 U
1,2-Dichloroethane	µg/L	0.5 U	0.5 U	1 UJ	0.5 U	0.5 U
1,2-Dichloropropane	µg/L	0.5 U	0.5 U	1 UJ	0.5 U	0.5 U
Benzene	µg/L	1.4	0.5 U	1 UJ	0.5 U	0.5 U
Carbon tetrachloride	µg/L	0.5 U	32.7	1 UJ	0.5 U	41.5
Chloroform (Trichloromethane)	µg/L	0.5 U	115	1 UJ	0.5 U	11.5
Chloromethane (Methyl chloride)	µg/L	0.5 U	0.5 U	1 UJ	0.5 U	0.5 U
Methylene chloride	µg/L	0.5 U	0.6	1 UJ	0.5 U	0.5 U
Tetrachloroethene	µg/L	1.7	9.5	1 UJ	0.5 U	2.0
Trichloroethene	µg/L	1.8	2.4	1 UJ	0.5 U	0.5 U
Vinyl chloride	µg/L	0.5 U	0.5 U	1 UJ	0.5 U	0.5 U
<b>Semi-volatile Organic Compounds</b>						
2,3,4,5-Tetrachlorophenol	µg/L	--	--	--	5.0 U	5.0 U
2,3,4,6-Tetrachlorophenol	µg/L	--	--	--	5.0 U	5.0 U
2,4,5-Trichlorophenol	µg/L	--	--	--	5.0 U	5.0 U
2,4,6-Trichlorophenol	µg/L	--	--	--	5.0 U	5.0 U
2,4-Dichlorophenol	µg/L	--	--	--	5.0 U	5.0 U
2,5-Dichlorophenol	µg/L	--	--	--	5.0 U	5.0 U
2,6-Dichlorophenol	µg/L	--	--	--	5.0 U	5.0 U
2-Chlorophenol	µg/L	--	--	--	5.0 U	5.0 U
3/4-Chlorophenol	µg/L	--	--	--	5.0 U	5.0 U
alpha-BHC	µg/L	--	--	--	0.011 U	0.011 U
beta-BHC	µg/L	--	--	--	0.037 U	0.037 U
delta-BHC	µg/L	--	--	--	0.05 U	0.05 U
gamma-BHC (lindane)	µg/L	--	--	--	0.052 U	0.052 U
Hexachlorobenzene	µg/L	--	--	--	0.10 U	0.10 U
Hexachlorobutadiene	µg/L	--	--	--	0.02 U	0.02 U
Hexachloroethane	µg/L	--	--	--	0.02 U	0.02 U
<b>Herbicides</b>						
2,4-Dichlorophenoxyacetic acid (2,4-D)	µg/L	--	--	--	1.0 U	1.0 U
Pentachlorophenol	µg/L	--	--	--	0.5 U	0.5 U
<b>General Chemistry</b>						
Chloride	µg/L	1680000	253000	53100	20400	73000
						71000

Notes:

U Not Detected  
 J Estimated Value  
 -- Not Analyzed

Table A.4

**Summary of Groundwater Analytical Results**  
**Non-Process Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location	MW147S2/S3	MW148S2/S3	MW148S2/S3	MW148S2/S3
Sample ID	WG-11052015-JR-MW147S2/S3	WG-11092014-AK-MW148S2/S3	WG-06092015-JR-MW148S2/S3	WG-11062015-JR-MW148S2/S3
Sample Date	11/5/2015	11/9/2014	6/9/2015	11/6/2015
<b>Parameters</b>		<b>Units</b>		
<b>Volatile Organic Compounds</b>				
1,1,1-Trichloroethane	µg/L	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	µg/L	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	µg/L	0.5 U	0.5 U	0.5 U
Benzene	µg/L	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	µg/L	43.6	1.2	9.8
Chloroform (Trichloromethane)	µg/L	12.1	4.5	8.1
Chloromethane (Methyl chloride)	µg/L	0.5 U	0.5 U	0.5 U
Methylene chloride	µg/L	0.5 U	0.5 U	0.5 U
Tetrachloroethene	µg/L	2.0	4.0	3.4
Trichloroethene	µg/L	0.5 U	1.0	1.3
Vinyl chloride	µg/L	0.5 U	0.5 U	0.5 U
<b>Semi-volatile Organic Compounds</b>				
2,3,4,5-Tetrachlorophenol	µg/L	5.0 U	5.0 U	5.0 U
2,3,4,6-Tetrachlorophenol	µg/L	5.0 U	5.0 U	5.0 U
2,4,5-Trichlorophenol	µg/L	5.0 U	5.0 U	5.0 U
2,4,6-Trichlorophenol	µg/L	5.0 U	5.0 U	5.0 U
2,4-Dichlorophenol	µg/L	5.0 U	5.0 U	5.0 U
2,5-Dichlorophenol	µg/L	5.0 U	5.0 U	5.0 U
2,6-Dichlorophenol	µg/L	5.0 U	5.0 U	5.0 U
2-Chlorophenol	µg/L	5.0 U	5.0 U	5.0 U
3/4-Chlorophenol	µg/L	5.0 U	5.0 U	5.0 U
alpha-BHC	µg/L	0.011 U	0.076	0.040
beta-BHC	µg/L	0.037 U	4.13	3.25
delta-BHC	µg/L	0.05 U	0.06	0.05 U
gamma-BHC (lindane)	µg/L	0.052 U	0.052 U	0.052 U
Hexachlorobenzene	µg/L	0.10 U	0.10 U	0.10 U
Hexachlorobutadiene	µg/L	0.02 U	0.02 U	0.02 U
Hexachloroethane	µg/L	0.02 U	0.02 U	0.02 U
<b>Herbicides</b>				
2,4-Dichlorophenoxyacetic acid (2,4-D)	µg/L	1.0 U	1.0 U	1.0 U
Pentachlorophenol	µg/L	0.5 U	0.5 U	0.5 U
<b>General Chemistry</b>				
Chloride	µg/L	70000	1240000	1180000
				1230000

Notes:

- U Not Detected
- J Estimated Value
- Not Analyzed

Table A.5

**Summary of Soil Analytical Results**  
**Landfill Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	AC-5	AC-6	BP-8	BP-11	HX-3	HX-11	P1S	P1S	P1SA	P1SB	P2S
Sample ID:	S-042710-RB-AC5	S-042810-RB-AC6	S-042710-RB-BP8	S-042710-RB-BP11	S-042610-RB-HX3	S-042110-RB-HW7	S-041910-RB-P1S	S-042210-RB-P1S	S-071910-TK-100	S-011212-WP-262	S-041910-RB-P2S
Sample Date:	4/27/2010	4/28/2010	4/27/2010	4/27/2010	4/26/2010	4/21/2010	4/19/2010	4/22/2010	7/19/2010	1/12/2012	4/19/2010
Sample Depth:	(15-16) ft BGS	(19-20) ft BGS	(11-12) ft BGS	(6-7) ft BGS	(9-10) ft BGS	(19-20) ft BGS	(10-11) ft BGS	(10-11) ft BGS	(1-2) ft BGS	(0.5-1) ft BGS	(6-7) ft BGS
Parameters	Units										
<b>Herbicides</b>											
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.02 U	2.1	6.8	0.03 U	0.3 U/0.02 U	0.1	0.02 U	--	0.02 U	0.02 U
Pentachlorophenol	mg/kg	0.02 U	0.2 U	1.0 U	0.03 U	42 J/5.7 J	0.02 U	0.02 U	--	0.02 U	0.02 U
<b>Semi-volatile Organic Compounds</b>											
2,3,4,5-Tetrachlorophenol	mg/kg	2.4 U	2.4 U	9.7 U	2.6 U	25 U/2.5 U	2.4 U	2.4 U	--	2.5 U	2.4 U
2,3,4,6-Tetrachlorophenol	mg/kg	2.4 U	2.4 U	9.7 U	2.6 U	25 U/2.5 U	2.4 U	2.4 U	--	2.5 U	2.4 U
2,4,5-Trichlorophenol	mg/kg	0.6 U	0.6 U	2 U	0.7 U	6 U/0.6 U	0.6 U	0.6 U	--	0.6 U	0.6 U
2,4,6-Trichlorophenol	mg/kg	0.6 U	1	38	0.7 U	6 U/0.6 U	0.6 U	0.6 U	--	0.6 U	0.6 U
2,4-Dichlorophenol	mg/kg	0.6 U	0.9	11	0.7 U	6 U/0.6 U	0.6 U	0.6 U	--	0.6 U	0.6 U
2,5-Dichlorophenol	mg/kg	1.2 U	1.2 U	4.8 U	1.3 U	13 U/1.2 U	1.2 U	1.2 U	--	1.2 U	1.2 U
2,6-Dichlorophenol	mg/kg	0.6 U	0.6 U	2 U	0.7 U	6 U/0.6 U	0.6 U	0.6 U	--	0.6 U	0.6 U
2-Chlorophenol	mg/kg	0.6 U	0.6 U	2 U	0.7 U	6 U/0.6 U	0.6 U	0.6 U	--	0.6 U	0.6 U
3/4-Chlorophenol	mg/kg	2.4 U	2.4 U	9.7 U	2.6 U	25 U/2.5 U	2.4 U	2.4 U	--	2.5 U	2.4 U
alpha-BHC	mg/kg	40	70	0.02 U	0.03 U	500 U/50 U	2 U	0.06 U	--	0.02 U	0.02 U
beta-BHC	mg/kg	5	10	0.02 U	0.17	500 U/50 U	2 U	0.2	--	0.49	0.34
delta-BHC	mg/kg	3 U	5 U	0.02 U	0.03 U	500 U/50 U	2 U	0.06 U	--	0.02 U	0.02 U
gamma-BHC (lindane)	mg/kg	3 U	5 U	0.02 U	0.03 U	500 U/50 U	2 U	0.06 U	--	0.02 U	0.02 U
Hexachlorobenzene	mg/kg	3 U	5 U	0.02 U	0.03 U	500 U/50 U	30	0.06 U	--	0.03	0.06
Hexachlorobutadiene	mg/kg	3 U	5 U	0.02 U	0.03 U	5600 J/890 J	7	0.71	--	0.02 U	0.02 U
Hexachloroethane	mg/kg	3 U	5 U	0.02 U	0.03 U	2000 J/360 J	2 U	0.06 U	--	0.02 U	0.02 U
<b>Volatile Organic Compounds</b>											
1,1,1-Trichloroethane	mg/kg	0.02 U	0.2 U	0.02 U	0.0065 U	20 U/20 U	0.02 U	--	0.02 U	0.0062 U	0.0049 U
1,2-Dichloroethane	mg/kg	0.02 U	0.2 U	0.02 U	0.0065 U	20 U/20 U	0.02 U	--	0.02 U	0.0062 U	0.0049 U
1,2-Dichloropropane	mg/kg	0.02 U	0.2 U	0.02 U	0.0065 U	20 U/20 U	0.02 U	--	0.02 U	0.0062 U	0.0049 U
Benzene	mg/kg	0.02 U	28.9	0.33	0.0065 U	20 U/20 U	0.23	--	0.02 U	0.0062 U	0.0049 U
Carbon tetrachloride	mg/kg	1.09	0.2 U	0.02 U	0.0065 U	30/20 U	0.11	--	0.02 U	0.0062 U	0.0049 U
Chloroform (Trichloromethane)	mg/kg	0.621	0.6	0.06 U	0.0065 U	20 U/20 U	0.14 U	--	0.03	0.0062 U	0.0049 U
Chloromethane (Methyl chloride)	mg/kg	0.02 U	0.2 U	0.02 U	0.0065 U	20 U/20 U	0.02 U	--	0.02 U	0.0062 U	0.0049 U
Methylene chloride	mg/kg	0.05 U	0.4	0.063 U	0.0065 U	81/58	0.03 U	--	0.03	0.0062 U	0.0049 U
Tetrachloroethene	mg/kg	3.44	0.5	0.11	0.0175	1110/802	0.54	--	0.29	0.0351	0.0049 U
Trichloroethene	mg/kg	0.25	0.2 U	0.03	0.0065 U	20 U/20 U	0.04	--	0.03	0.0062 U	0.0049 U
Vinyl chloride	mg/kg	0.02 U	0.2 U	0.02 U	0.0065 U	20 U/20 U	0.02 U	--	0.02 U	0.0062 U	0.0049 U
<b>General Chemistry</b>											
Chloride	mg/kg	460	91	3210	550	2000/1540	2730	255	--	53	14
											100

## Notes

U Not Detected  
J Estimated Value  
x/x Sample result/Duplicate result

Table A.5

**Summary of Soil Analytical Results**  
**Landfill Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	P2S	P2SA	P2SB	P3S	P3S	P3SA	P3SB	P4S	P4S	P4SA	P4SB
Sample ID:	S-042210-RB-P2S	S-071910-TK-101	S-011212-WP-261	S-041910-RB-P3S	S-042210-RB-P3S	S-071910-TK-102	S-011212-WP-260	S-041910-RB-P4S	S-042210-RB-P4S	S-071910-TK-103	S-011112-WP-271
Sample Date:	4/22/2010	7/19/2010	1/12/2012	4/19/2010	4/22/2010	7/19/2010	1/12/2012	4/19/2010	4/22/2010	7/19/2010	1/11/2012
Sample Depth:	(6-7) ft BGS	(2-3) ft BGS	(0.5-1) ft BGS	(11-12) ft BGS	(11-12) ft BGS	(1-2) ft BGS	(1.5-3) ft BGS	(8-9) ft BGS	(8-9) ft BGS	(1-2) ft BGS	(1.5-3) ft BGS
Parameters	Units										
<b>Herbicides</b>											
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	--	0.03 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	--	0.04
Pentachlorophenol	mg/kg	--	0.03 U	0.02 U	0.02 U	--	0.21	0.02 U	0.02 U	--	0.06
<b>Semi-volatile Organic Compounds</b>											
2,3,4,5-Tetrachlorophenol	mg/kg	--	2.6 U	2.3 U	2.5 U	--	2.4 U	2.4 U	2.3 U	--	2.3 U
2,3,4,6-Tetrachlorophenol	mg/kg	--	2.6 U	2.3 U	2.5 U	--	2.4 U	2.4 U	2.3 U	--	2.3 U
2,4,5-Trichlorophenol	mg/kg	--	0.6 U	0.6 U	0.6 U	--	0.6 U	0.6 U	0.6 U	--	0.6 U
2,4,6-Trichlorophenol	mg/kg	--	0.6 U	0.6 U	0.6 U	--	0.6 U	0.6 U	0.6 U	--	0.6 U
2,4-Dichlorophenol	mg/kg	--	0.6 U	0.6 U	0.6 U	--	0.6 U	0.6 U	0.6 U	--	0.6 U
2,5-Dichlorophenol	mg/kg	--	1.3 U	1.2 U	1.2 U	--	1.2 U	1.2 U	1.2 U	--	1.1 U
2,6-Dichlorophenol	mg/kg	--	0.6 U	0.6 U	0.6 U	--	0.6 U	0.6 U	0.6 U	--	0.6 U
2-Chlorophenol	mg/kg	--	0.6 U	0.6 U	0.6 U	--	0.6 U	0.6 U	0.6 U	--	0.6 U
3/4-Chlorophenol	mg/kg	--	2.6 U	2.3 U	2.5 U	--	2.4 U	2.4 U	2.3 U	--	2.3 U
alpha-BHC	mg/kg	--	1 U	0.02 U	0.02 U	--	6 U	0.02 U	0.02 U	--	350
beta-BHC	mg/kg	--	27	0.12	0.02 U	--	48	0.02 U	0.03	--	50
delta-BHC	mg/kg	--	1 U	0.02 U	0.02 U	--	6 U	0.02 U	0.02 U	--	20 U
gamma-BHC (lindane)	mg/kg	--	1 U	0.02 U	0.02 U	--	6 U	0.02 U	0.02 U	--	20 U
Hexachlorobenzene	mg/kg	--	1 U	0.02 U	0.02 U	--	120	0.02 U	0.02 U	--	60
Hexachlorobutadiene	mg/kg	--	1 U	0.02 U	0.17	--	6 U	0.02 U	0.29	--	20 U
Hexachloroethane	mg/kg	--	1 U	0.02 U	0.05	--	6 U	0.02 U	0.03	--	20 U
<b>Volatile Organic Compounds</b>											
1,1,1-Trichloroethane	mg/kg	0.03 U	0.03 U	0.0048 U	--	0.1 U	0.02 U	0.0059 U	--	0.03 U	0.02 U
1,2-Dichloroethane	mg/kg	0.03 U	0.03 U	0.0048 U	--	0.1 U	0.02 U	0.0059 U	--	0.03 U	0.02 U
1,2-Dichloropropane	mg/kg	0.03 U	0.03 U	0.0048 U	--	0.1 U	0.02 U	0.0059 U	--	0.03 U	0.02 U
Benzene	mg/kg	0.03 U	0.03 U	0.0048 U	--	0.1 U	0.03	0.0059 U	--	0.03 U	0.02 U
Carbon tetrachloride	mg/kg	0.11	0.06 J	0.0141	--	0.56	0.02 U	0.0069	--	0.15	0.02 U
Chloroform (Trichloromethane)	mg/kg	0.087	0.12 U	0.01	--	0.79	0.076	0.0168	--	0.21	0.05
Chloromethane (Methyl chloride)	mg/kg	0.03 U	0.03 U	0.0048 U	--	0.1 U	0.02 U	0.0059 U	--	0.03 U	0.02 U
Methylene chloride	mg/kg	0.04	0.04 U	0.0048 U	--	0.1 U	0.03	0.0059 U	--	0.04	0.02
Tetrachloroethene	mg/kg	2.72	1.29 J	0.41	--	12.1	0.37	0.14	--	3.28	0.02 U
Trichloroethene	mg/kg	0.03 U	0.03 U	0.0048 U	--	0.1 U	0.02 U	0.0059 U	--	0.03 U	0.02 U
Vinyl chloride	mg/kg	0.03 U	0.03 U	0.0048 U	--	0.1 U	0.02 U	0.0059 U	--	0.03 U	0.02 U
<b>General Chemistry</b>											
Chloride	mg/kg	--	30	12 U	948	--	33	12 U	1240	--	93
											13 U

## Notes

- U Not Detected
- J Estimated Value
- x/x Sample result/Duplicate result

Table A.5

**Summary of Soil Analytical Results**  
**Landfill Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	P5S	P5S	P5SA	P5SB	P6S	P6S	P6SA	P6SB	P7S	P7S	P7SA
Sample ID:	S-041910-RB-P5S	S-042210-RB-P5S	S-071910-TK-104	S-011112-WP-270	S-041910-RB-P6S	S-042210-RB-P6S	S-071910-TK-105	S-011112-WP-259	S-041910-RB-P7S	S-042210-RB-P7S	S-071910-TK-106
Sample Date:	4/19/2010	4/22/2010	7/19/2010	1/11/2012	4/19/2010	4/22/2010	7/19/2010	1/11/2012	4/19/2010	4/22/2010	7/19/2010
Sample Depth:	(9-10) ft BGS	(9-10) ft BGS	(1-2) ft BGS	(0.5-1) ft BGS	(6-7) ft BGS	(6-7) ft BGS	(2-3) ft BGS	(1.5-3) ft BGS	(7-10) ft BGS	(7-10) ft BGS	(1-2) ft BGS
Parameters	Units										
<b>Herbicides</b>											
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.02 U	--	0.09 U	0.02 U	20 U	--	0.02 U	0.03 U	0.5 U	--
Pentachlorophenol	mg/kg	0.02 U	--	0.57 J	0.02 U	160	--	0.02 U	0.03 U	2	--
<b>Semi-volatile Organic Compounds</b>											
2,3,4,5-Tetrachlorophenol	mg/kg	2.4 U	--	4.5 U	2.5 U	480 U	--	2.3 U	2.6 U	2.6 U	--
2,3,4,6-Tetrachlorophenol	mg/kg	2.4 U	--	4.5 U	2.5 U	480 U	--	2.3 U	2.6 U	2.6 U	--
2,4,5-Trichlorophenol	mg/kg	0.6 U	--	1 U	0.6 U	100 U	--	0.6 U	0.6 U	0.7 U	--
2,4,6-Trichlorophenol	mg/kg	0.6 U	--	1 U	0.6 U	100 U	--	0.6 U	0.6 U	0.7 U	--
2,4-Dichlorophenol	mg/kg	0.6 U	--	1 U	0.6 U	100 U	--	0.6 U	0.6 U	0.7 U	--
2,5-Dichlorophenol	mg/kg	1.2 U	--	2.3 U	1.2 U	240 U	--	1.1 U	1.3 U	1.3 U	--
2,6-Dichlorophenol	mg/kg	0.6 U	--	1 U	0.6 U	100 U	--	0.6 U	0.6 U	0.7 U	--
2-Chlorophenol	mg/kg	0.6 U	--	1 U	0.6 U	100 U	--	0.6 U	0.6 U	0.7 U	--
3/4-Chlorophenol	mg/kg	2.4 U	--	4.5 U	2.5 U	480 U	--	2.3 U	2.6 U	2.6 U	--
alpha-BHC	mg/kg	2.4	--	990	0.1	1300	--	600	0.03 U	50 U	--
beta-BHC	mg/kg	1.9	--	200	26	200 U	--	90	0.26	50 U	--
delta-BHC	mg/kg	0.7	--	90 U	0.09	200 U	--	50 U	0.03 U	50 U	--
gamma-BHC (lindane)	mg/kg	0.2 U	--	90 U	0.03	200 U	--	50 U	0.03 U	50 U	--
Hexachlorobenzene	mg/kg	0.2	--	650	0.48	2700	--	50 U	0.03 U	470	--
Hexachlorobutadiene	mg/kg	0.3	--	90 U	0.02 U	200 U	--	50 U	0.03 U	50 U	--
Hexachloroethane	mg/kg	0.2 U	--	90 U	0.02 U	200 U	--	50 U	0.03 U	50 U	--
<b>Volatile Organic Compounds</b>											
1,1,1-Trichloroethane	mg/kg	--	0.0061 U	0.02 U	0.0052 U	--	10 U	0.02 U	0.03 U	--	10 U
1,2-Dichloroethane	mg/kg	--	0.0061 U	0.02 U	0.0052 U	--	10 U	0.02 U	0.03 U	--	10 U
1,2-Dichloropropane	mg/kg	--	0.0061 U	0.02 U	0.0052 U	--	10 U	0.02 U	0.03 U	--	10 U
Benzene	mg/kg	--	0.01	0.05	0.0052 U	--	10 U	0.02 U	0.03 U	--	10 U
Carbon tetrachloride	mg/kg	--	0.0134	0.02 U	0.0052 U	--	10 U	0.27	0.05	--	10 U
Chloroform (Trichloromethane)	mg/kg	--	0.0132	0.08 U	0.0052 U	--	10	0.12	0.03 U	--	10 U
Chloromethane (Methyl chloride)	mg/kg	--	0.0061 U	0.02 U	0.0052 U	--	10 U	0.02 U	0.03 U	--	10 U
Methylene chloride	mg/kg	--	0.0061 U	0.04 U	0.0052 U	--	10 U	0.03	0.03 U	--	10 U
Tetrachloroethene	mg/kg	--	0.114	0.16	0.0052 U	--	783	0.728	0.083	--	1270
Trichloroethene	mg/kg	--	0.0064	0.02 U	0.0052 U	--	51	0.04	0.03 U	--	10 U
Vinyl chloride	mg/kg	--	0.0061 U	0.02 U	0.0052 U	--	10 U	0.02 U	0.03 U	--	10 U
<b>General Chemistry</b>											
Chloride	mg/kg	400	--	95	12 U	775	--	71	13 U	167	--
											100

## Notes

- U Not Detected
- J Estimated Value
- x/x Sample result/Duplicate result

Table A.5

**Summary of Soil Analytical Results**  
**Landfill Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	P7SB	P8EA	P8SA	P8SB	P8SE	P8SE	P8SEB	P9E	P9E	P10E	P10E
Sample ID:	S-011112-WP-258	S-011212-WP-263	S-071910-TK-107	S-011112-WP-257	S-041910-RB-P8SE	S-042210-RB-P8SE	S-011112-WP-256	S-042010-RB-P9E	S-042210-RB-P9E	S-042010-RB-P10E	S-042210-RB-P10E
Sample Date:	1/11/2012	1/12/2012	7/19/2010	1/11/2012	4/19/2010	4/22/2010	1/11/2012	4/20/2010	4/22/2010	4/20/2010	4/22/2010
Sample Depth:	(0.5-1.5) ft BGS	(0.5-1.9) ft BGS	(1-2) ft BGS	(0.5-1.5) ft BGS	(13-14) ft BGS	(13-14) ft BGS	(1.5-3) ft BGS	(4-5) ft BGS	(4-5) ft BGS	(7-8) ft BGS	(7-8) ft BGS
Parameters	Units										
<b>Herbicides</b>											
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.03 U	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	--	0.03 U
Pentachlorophenol	mg/kg	0.03 U	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	--	0.03 U
<b>Semi-volatile Organic Compounds</b>											
2,3,4,5-Tetrachlorophenol	mg/kg	2.6 U	2.3 U/2.3 U	2.4 U	2.5 U	2.5 U	--	2.5 U	2.5 U	--	2.6 U
2,3,4,6-Tetrachlorophenol	mg/kg	2.6 U	2.3 U/2.3 U	2.4 U	2.5 U	2.5 U	--	2.5 U	2.5 U	--	2.6 U
2,4,5-Trichlorophenol	mg/kg	0.6 U	0.6 U/0.6 U	0.6 U	0.6 U	0.6 U	--	0.6 U	0.6 U	--	0.6 U
2,4,6-Trichlorophenol	mg/kg	0.6 U	0.6 U/0.6 U	0.6 U	0.6 U	0.6 U	--	0.6 U	0.6 U	--	0.6 U
2,4-Dichlorophenol	mg/kg	0.6 U	0.6 U/0.6 U	0.6 U	0.6 U	0.6 U	--	0.6 U	0.6 U	--	0.6 U
2,5-Dichlorophenol	mg/kg	1.3 U	1.1 U/1.2 U	1.2 U	1.2 U	1.2 U	--	1.2 U	1.2 U	--	1.3 U
2,6-Dichlorophenol	mg/kg	0.6 U	0.6 U/0.6 U	0.6 U	0.6 U	0.6 U	--	0.6 U	0.6 U	--	0.6 U
2-Chlorophenol	mg/kg	0.6 U	0.6 U/0.6 U	0.6 U	0.6 U	0.6 U	--	0.6 U	0.6 U	--	0.6 U
3/4-Chlorophenol	mg/kg	2.6 U	2.3 U/2.3 U	2.4 U	2.5 U	2.5 U	--	2.5 U	2.5 U	--	2.6 U
alpha-BHC	mg/kg	0.05	0.02 U/0.02 U	0.15	0.05	0.07	--	0.02 U	0.02 U	--	0.05 U
beta-BHC	mg/kg	6.7	0.23/0.29	0.17	3.9	0.31	--	0.05 J	0.03	--	0.3
delta-BHC	mg/kg	0.03 U	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	--	0.05 U
gamma-BHC (lindane)	mg/kg	0.03 U	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	--	0.05 U
Hexachlorobenzene	mg/kg	0.25	0.057/0.15	0.02 U	0.15	0.05	--	0.02 U	0.02 U	--	0.59
Hexachlorobutadiene	mg/kg	0.03 U	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	--	0.05 U
Hexachloroethane	mg/kg	0.03 U	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	--	0.05 U
<b>Volatile Organic Compounds</b>											
1,1,1-Trichloroethane	mg/kg	0.0064 U	0.0046 U/0.005 U	0.0059 U	0.0053 U	--	0.02 U	0.0062 U	--	0.0062 U	--
1,2-Dichloroethane	mg/kg	0.0064 U	0.0046 U/0.005 U	0.0059 U	0.0053 U	--	0.02 U	0.0062 U	--	0.0062 U	--
1,2-Dichloropropane	mg/kg	0.0064 U	0.0046 U/0.005 U	0.0059 U	0.0053 U	--	0.02 U	0.0062 U	--	0.0062 U	--
Benzene	mg/kg	0.0064 U	0.0046 U/0.005 U	0.0059 U	0.0053 U	--	0.04	0.0062 U	--	0.0062 U	--
Carbon tetrachloride	mg/kg	0.0064 U	0.0046 U/0.005 U	0.0059 U	0.0053 U	--	0.02 U	0.0062 U	--	0.0062 U	--
Chloroform (Trichloromethane)	mg/kg	0.012	0.0046 U/0.005 U	0.0059 U	0.0053 U	--	0.08	0.0062 U	--	0.0062 U	--
Chloromethane (Methyl chloride)	mg/kg	0.0064 U	0.0046 U/0.005 U	0.0059 U	0.0053 U	--	0.02 U	0.0062 U	--	0.0062 U	--
Methylene chloride	mg/kg	0.0064 U	0.0046 U/0.005 U	0.0059 U	0.0053 U	--	0.03	0.0062 U	--	0.0062 U	--
Tetrachloroethene	mg/kg	0.0134	0.0046 U/0.005 U	0.0153	0.0053 U	--	0.09	0.0062 U	--	0.0062 U	--
Trichloroethene	mg/kg	0.0064 U	0.0046 U/0.005 U	0.0059 U	0.0053 U	--	0.02 U	0.0062 U	--	0.0062 U	--
Vinyl chloride	mg/kg	0.0064 U	0.0046 U/0.005 U	0.0059 U	0.0053 U	--	0.02 U	0.0062 U	--	0.0062 U	--
<b>General Chemistry</b>											
Chloride	mg/kg	13 U	11 U/6.9 U	1230	12 U	1600	--	12 U	838	--	1130

## Notes

- U Not Detected
- J Estimated Value
- x/x Sample result/Duplicate result

Table A.5

**Summary of Soil Analytical Results**  
**Landfill Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	P10EA	P11E	P11E	P11EA	P12E	P12E	P12EA	P13E	P13E	P14NE	P14NE	
Sample ID:	S-011212-WP-265	S-042010-RB-P11E	S-042210-RB-P11E	S-011212-WP-266	S-042010-RB-P12E	S-042210-RB-P12E	S-011212-WP-267	S-042010-RB-P13E	S-042210-RB-P13E	S-042010-RB-P14NE	S-042210-RB-P14NE	
Sample Date:	1/12/2012	4/20/2010	4/22/2010	1/12/2012	4/20/2010	4/22/2010	1/12/2012	4/20/2010	4/22/2010	4/20/2010	4/22/2010	
Sample Depth:	(1.5-3) ft BGS	(7-8) ft BGS	(7-8) ft BGS	(1.5-3) ft BGS	(4-5) ft BGS	(4-5) ft BGS	(1.5-3) ft BGS	(7-8) ft BGS	(7-8) ft BGS	(4-5) ft BGS	(4-5) ft BGS	
Parameters	Units											
<b>Herbicides</b>												
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.02 U	0.16	--	0.02 U	0.02 U	--	0.02 U	0.02 U	--	0.03 U	
Pentachlorophenol	mg/kg	0.02 U	0.03 U	--	0.02 U	0.02 U	--	0.02 U	0.02 U	--	0.03 U	
<b>Semi-volatile Organic Compounds</b>												
2,3,4,5-Tetrachlorophenol	mg/kg	2.3 U	2.8 U	--	2.5 U	2.4 U	--	2.3 U	2.4 U	--	2.5 U	
2,3,4,6-Tetrachlorophenol	mg/kg	2.3 U	2.8 U	--	2.5 U	2.4 U	--	2.3 U	2.4 U	--	2.5 U	
2,4,5-Trichlorophenol	mg/kg	0.6 U	0.7 U	--	0.6 U	0.6 U	--	0.6 U	0.6 U	--	0.6 U	
2,4,6-Trichlorophenol	mg/kg	0.6 U	0.7 U	--	0.6 U	0.6 U	--	0.6 U	0.6 U	--	0.6 U	
2,4-Dichlorophenol	mg/kg	0.6 U	0.7 U	--	0.6 U	0.6 U	--	0.6 U	0.6 U	--	0.6 U	
2,5-Dichlorophenol	mg/kg	1.2 U	1.4 U	--	1.2 U	1.2 U	--	1.2 U	1.2 U	--	1.3 U	
2,6-Dichlorophenol	mg/kg	0.6 U	0.7 U	--	0.6 U	0.6 U	--	0.6 U	0.6 U	--	0.6 U	
2-Chlorophenol	mg/kg	0.6 U	0.7 U	--	0.6 U	0.6 U	--	0.6 U	0.6 U	--	0.6 U	
3/4-Chlorophenol	mg/kg	2.3 U	2.8 U	--	2.5 U	2.4 U	--	2.3 U	2.4 U	--	2.5 U	
alpha-BHC	mg/kg	0.02 U	0.1 U	--	0.02 U	0.02 U	--	0.02 U	0.02 U	--	0.5 U	
beta-BHC	mg/kg	0.02 U	2	--	0.05	0.02 U	--	0.02 U	0.02 U	--	4.7	
delta-BHC	mg/kg	0.02 U	0.1 U	--	0.02 U	0.02 U	--	0.02 U	0.02 U	--	0.5 U	
gamma-BHC (lindane)	mg/kg	0.02 U	0.1 U	--	0.02 U	0.02 U	--	0.02 U	0.02 U	--	0.5 U	
Hexachlorobenzene	mg/kg	0.02 U	0.2	--	0.02 U	0.02 U	--	0.02 U	0.02 U	--	0.5 U	
Hexachlorobutadiene	mg/kg	0.02 U	0.1 U	--	0.02 U	0.02 U	--	0.02 U	0.02 U	--	0.5 U	
Hexachloroethane	mg/kg	0.02 U	0.1 U	--	0.02 U	0.02 U	--	0.02 U	0.02 U	--	0.5 U	
<b>Volatile Organic Compounds</b>												
1,1,1-Trichloroethane	mg/kg	0.0059 U	--	0.0083 U	0.005 U	--	0.006 U	0.0047 U	--	0.02 U	--	0.0064 U
1,2-Dichloroethane	mg/kg	0.0059 U	--	0.0083 U	0.005 U	--	0.006 U	0.0047 U	--	0.02 U	--	0.0064 U
1,2-Dichloropropane	mg/kg	0.0059 U	--	0.0083 U	0.005 U	--	0.006 U	0.0047 U	--	0.02 U	--	0.0064 U
Benzene	mg/kg	0.0059 U	--	0.0083 U	0.005 U	--	0.006 U	0.0047 U	--	0.02 U	--	0.0064 U
Carbon tetrachloride	mg/kg	0.0059 U	--	0.0083 U	0.005 U	--	0.006 U	0.0047 U	--	0.02 U	--	0.0064 U
Chloroform (Trichloromethane)	mg/kg	0.0059 U	--	0.0083 U	0.005 U	--	0.006 U	0.0047 U	--	0.03	--	0.0064 U
Chloromethane (Methyl chloride)	mg/kg	0.0059 U	--	0.0083 U	0.005 U	--	0.006 U	0.0047 U	--	0.02 U	--	0.0064 U
Methylene chloride	mg/kg	0.0059 U	--	0.0083 U	0.005 U	--	0.006 U	0.0047 U	--	0.02	--	0.0064 U
Tetrachloroethene	mg/kg	0.0059 U	--	0.0084	0.005 U	--	0.0066	0.0047 U	--	0.26	--	0.0064 U
Trichloroethene	mg/kg	0.0059 U	--	0.0083 U	0.005 U	--	0.006 U	0.0047 U	--	0.02 U	--	0.0064 U
Vinyl chloride	mg/kg	0.0059 U	--	0.0083 U	0.005 U	--	0.006 U	0.0047 U	--	0.02 U	--	0.0064 U
<b>General Chemistry</b>												
Chloride	mg/kg	669	120	--	822	7590	--	663	1780	--	110	--
Notes												
U	Not Detected											
J	Estimated Value											
x/x	Sample result/Duplicate result											

Table A.5

**Summary of Soil Analytical Results**  
**Landfill Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	P15N	P15N	P16W	P16W	P17W	P17W	P18W	P18W	P19W	P19W	
Sample ID:	S-042010-RB-P15N	S-042210-RB-P15N	S-042010-RB-P16W	S-042210-RB-P16W	S-042010-RB-P17W	S-042210-RB-P17W	S-042010-RB-P18W	S-042210-RB-P18W	S-042010-RB-P19W	S-042210-RB-P19W	
Sample Date:	4/20/2010	4/22/2010	4/20/2010	4/22/2010	4/20/2010	4/22/2010	4/20/2010	4/22/2010	4/20/2010	4/22/2010	
Sample Depth:	(4-5) ft BGS	(4-5) ft BGS	(3-4) ft BGS	(3-4) ft BGS	(10-11) ft BGS	(10-11) ft BGS	(3-5) ft BGS	(3-5) ft BGS	(6-7) ft BGS	(6-7) ft BGS	
Parameters										Units	
<b>Herbicides</b>											
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.02 U	--	0.03 U	--	0.2	--	0.02 U/0.02 U	--	0.02 U	
Pentachlorophenol	mg/kg	0.02 U	--	0.03 U	--	0.05 U	--	0.02 U/0.02 U	--	0.02 U	
<b>Semi-volatile Organic Compounds</b>											
2,3,4,5-Tetrachlorophenol	mg/kg	2.4 U	--	2.5 U	--	2.4 U	--	2.4 U/2.4 U	--	2.5 U	
2,3,4,6-Tetrachlorophenol	mg/kg	2.4 U	--	2.5 U	--	2.4 U	--	2.4 U/2.4 U	--	2.5 U	
2,4,5-Trichlorophenol	mg/kg	0.6 U	--	0.6 U	--	0.6 U	--	0.6 U/0.6 U	--	0.6 U	
2,4,6-Trichlorophenol	mg/kg	0.6 U	--	0.6 U	--	0.6 U	--	0.6 U/0.6 U	--	0.6 U	
2,4-Dichlorophenol	mg/kg	0.6 U	--	0.6 U	--	0.6 U	--	0.6 U/0.6 U	--	0.6 U	
2,5-Dichlorophenol	mg/kg	1.2 U	--	1.3 U	--	1.2 U	--	1.2 U/1.2 U	--	1.2 U	
2,6-Dichlorophenol	mg/kg	0.6 U	--	0.6 U	--	0.6 U	--	0.6 U/0.6 U	--	0.6 U	
2-Chlorophenol	mg/kg	0.6 U	--	0.6 U	--	0.6 U	--	0.6 U/0.6 U	--	0.6 U	
3,4-Chlorophenol	mg/kg	2.4 U	--	2.5 U	--	2.4 U	--	2.4 U/2.4 U	--	2.5 U	
alpha-BHC	mg/kg	0.02 U	--	0.03 U	--	0.02 U	--	0.02 U/0.02 U	--	0.02 U	
beta-BHC	mg/kg	0.15	--	0.08	--	0.03	--	0.04/0.02 U	--	0.02 U	
delta-BHC	mg/kg	0.02 U	--	0.03 U	--	0.02 U	--	0.02 U/0.02 U	--	0.02 U	
gamma-BHC (lindane)	mg/kg	0.02 U	--	0.03 U	--	0.02 U	--	0.02 U/0.02 U	--	0.02 U	
Hexachlorobenzene	mg/kg	0.02 U	--	0.03 U	--	0.02 U	--	0.02 U/0.02 U	--	0.02 U	
Hexachlorobutadiene	mg/kg	0.02 U	--	0.03 U	--	0.02 U	--	0.02 U/0.02 U	--	0.02 U	
Hexachloroethane	mg/kg	0.02 U	--	0.03 U	--	0.02 U	--	0.02 U/0.02 U	--	0.02 U	
<b>Volatile Organic Compounds</b>											
1,1,1-Trichloroethane	mg/kg	--	0.006 U	--	0.0063 U	--	0.02 U	--	0.006 U/0.006 U	--	0.03 U
1,2-Dichloroethane	mg/kg	--	0.006 U	--	0.0063 U	--	0.02 U	--	0.006 U/0.006 U	--	0.03 U
1,2-Dichloropropane	mg/kg	--	0.006 U	--	0.0063 U	--	0.02 U	--	0.006 U/0.006 U	--	0.03 U
Benzene	mg/kg	--	0.006 U	--	0.0063 U	--	0.02 U	--	0.006 U/0.006 U	--	0.03 U
Carbon tetrachloride	mg/kg	--	0.006 U	--	0.0063 U	--	0.02 U	--	0.006 U/0.006 U	--	0.03 U
Chloroform (Trichloromethane)	mg/kg	--	0.006 U	--	0.0063 U	--	0.05	--	0.006 U/0.006 U	--	0.075 U
Chloromethane (Methyl chloride)	mg/kg	--	0.006 U	--	0.0063 U	--	0.02 U	--	0.006 U/0.006 U	--	0.03 U
Methylene chloride	mg/kg	--	0.006 U	--	0.0063 U	--	0.03	--	0.006 U/0.006 U	--	0.03 U
Tetrachloroethene	mg/kg	--	0.006 U	--	0.0063 U	--	0.928	--	0.0184/0.033	--	1.4
Trichloroethene	mg/kg	--	0.006 U	--	0.0063 U	--	0.07	--	0.006 U/0.006 U	--	0.03 U
Vinyl chloride	mg/kg	--	0.006 U	--	0.0063 U	--	0.02 U	--	0.006 U/0.006 U	--	0.03 U
<b>General Chemistry</b>											
Chloride	mg/kg	12 U	--	13 U	--	3980	--	93 J/17 J	--	12 U	

## Notes

- U Not Detected
- J Estimated Value
- x/x Sample result/Duplicate result

Table A.5

**Summary of Soil Analytical Results**  
**Landfill Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	P20W	P20W	P21W	P21W	P22W	P22W	SB-1	SB-2	
Sample ID:	S-042010-RB-P20W	S-042210-RB-P20W	S-042010-RB-P21W	S-042210-RB-P21W	S-042010-RB-P22W	S-042210-RB-P22W	S-042210-RB-SB1	S-042210-RB-SB2	
Sample Date:	4/20/2010	4/22/2010	4/20/2010	4/22/2010	4/20/2010	4/22/2010	4/21/2010	4/21/2010	
Sample Depth:	(4-5) ft BGS	(4-5) ft BGS	(7-8) ft BGS	(7-8) ft BGS	(7-8) ft BGS	(7-8) ft BGS	(3-4) ft BGS	(3-4) ft BGS	
Parameters		Units							
<b>Herbicides</b>									
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/kg	0.02 U	--	0.02 U	--	0.02 U	--	0.02 U	
Pentachlorophenol	mg/kg	0.02 U	--	0.02 U	--	0.02 U	--	0.02 U	
<b>Semi-volatile Organic Compounds</b>									
2,3,4,5-Tetrachlorophenol	mg/kg	2.4 U	--	2.5 U	--	2.4 U	--	2.4 U	
2,3,4,6-Tetrachlorophenol	mg/kg	2.4 U	--	2.5 U	--	2.4 U	--	2.4 U	
2,4,5-Trichlorophenol	mg/kg	0.6 U	--	0.6 U	--	0.6 U	--	0.6 U	
2,4,6-Trichlorophenol	mg/kg	0.6 U	--	0.6 U	--	0.6 U	--	0.6 U	
2,4-Dichlorophenol	mg/kg	0.6 U	--	0.6 U	--	0.6 U	--	0.6 U	
2,5-Dichlorophenol	mg/kg	1.2 U	--	1.2 U	--	1.2 U	--	1.2 U	
2,6-Dichlorophenol	mg/kg	0.6 U	--	0.6 U	--	0.6 U	--	0.6 U	
2-Chlorophenol	mg/kg	0.6 U	--	0.6 U	--	0.6 U	--	0.6 U	
3,4-Chlorophenol	mg/kg	2.4 U	--	2.5 U	--	2.4 U	--	2.4 U	
alpha-BHC	mg/kg	0.02 U	--	0.02 U	--	0.02 U	--	0.02 U	
beta-BHC	mg/kg	0.02 U	--	0.02 U	--	0.02 U	--	0.02 U	
delta-BHC	mg/kg	0.02 U	--	0.02 U	--	0.02 U	--	0.02 U	
gamma-BHC (lindane)	mg/kg	0.02 U	--	0.02 U	--	0.02 U	--	0.02 U	
Hexachlorobenzene	mg/kg	0.02 U	--	0.02 U	--	0.02 U	--	0.02 U	
Hexachlorobutadiene	mg/kg	0.02 U	--	0.02 U	--	0.02 U	--	0.02 U	
Hexachloroethane	mg/kg	0.02 U	--	0.02 U	--	0.02 U	--	0.02 U	
<b>Volatile Organic Compounds</b>									
1,1,1-Trichloroethane	mg/kg	--	0.0063 U	--	0.0062 U	--	0.006 U	0.006 U	
1,2-Dichloroethane	mg/kg	--	0.0063 U	--	0.0062 U	--	0.006 U	0.0059 U	
1,2-Dichloropropane	mg/kg	--	0.0063 U	--	0.0062 U	--	0.006 U	0.0059 U	
Benzene	mg/kg	--	0.0063 U	--	0.0062 U	--	0.006 U	0.0059 U	
Carbon tetrachloride	mg/kg	--	0.0063 U	--	0.0062 U	--	0.022	0.006 U	
Chloroform (Trichloromethane)	mg/kg	--	0.0063 U	--	0.0062 U	--	0.0045	0.006 U	
Chloromethane (Methyl chloride)	mg/kg	--	0.0063 U	--	0.0062 U	--	0.006 U	0.006 U	
Methylene chloride	mg/kg	--	0.0063 U	--	0.0062 U	--	0.006 U	0.0059 U	
Tetrachloroethene	mg/kg	--	0.0063 U	--	0.0062 U	--	0.0414	0.006 U	
Trichloroethene	mg/kg	--	0.0063 U	--	0.0062 U	--	0.006 U	0.0059 U	
Vinyl chloride	mg/kg	--	0.0063 U	--	0.0062 U	--	0.006 U	0.0059 U	
<b>General Chemistry</b>									
Chloride	mg/kg	53	--	65	--	44	--	12 U	
Notes									
U	Not Detected								
J	Estimated Value								
x/x	Sample result/Duplicate result								

Table A.6

**Summary of Groundwater Analytical Results**  
**Landfill Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	IW30	IW30	IW30	IW30	IW30	IW30	IW31	IW31	IW31	
Sample ID:	GW-05182011-JH-IW30	WG-05172012-BS-IW30	WG-05172013-MC-IW30	WG-05222014-JR-IW30	WG-06192015-JR-IW30	GW-05182011-JH-IW31	WG-05172012-BS-IW31	WG-05172013-MC-IW31	WG-05222014-JR-IW31	
Sample Date:	5/18/2011	5/17/2012	5/17/2013	5/22/2014	6/19/2015	5/18/2011	5/17/2012	5/17/2013	5/22/2014	
<b>Parameters</b>										
<b>Units</b>										
<b>Herbicides</b>										
2,4-Dichlorophenoxyacetic acid (2,4-D)	µg/L	440	300	240	160/150	46/52	840	820	490	340
Pentachlorophenol	µg/L	130	150	210	160/150	88/86	300	170	110	100
<b>Semi-volatile Organic Compounds</b>										
2,3,4,5-Tetrachlorophenol	µg/L	120	141	149	5.0 U/5.0 U	115 J/118 J	71	47.7	34.7	5.0 U
2,3,4,6-Tetrachlorophenol	µg/L	120	141	149	168/167	115 J/118 J	71	47.7	34.7	23.2
2,4,5-Trichlorophenol	µg/L	10 U	5.0 U	5.0 U	5.0 U/5.0 U	5.0 UJ/5.0 UJ	25 U	5.0 U	5.0 U	5.0 U
2,4,6-Trichlorophenol	µg/L	261	5.0 U	207	254/255	156 J/154 J	223	176	115	104
2,4-Dichlorophenol	µg/L	180	149	134	112/130	77.3 J/92.6 J	480	5.0 U	189	146
2,5-Dichlorophenol	µg/L	10 U	5.0 U	5.0 U	5.0 UJ/5.0 UJ	25 U	5.0 U	5.0 U	5.0 U	5.0 U
2,6-Dichlorophenol	µg/L	37.1	22.6	23.1	21.6/22.4	14.0 J/15.7 J	205	112	75.7	60.4
2-Chlorophenol	µg/L	14	12.9	14.5 J	16.3/16.7	13.4 J/13.9 J	25 U	20.8	24.5 J	16.5
3/4-Chlorophenol	µg/L	10 U	5.6	6.5	16.6/17.4	5.0 UJ/5.0 UJ	39	30.2	29.4	13.5
alpha-BHC	µg/L	5.5 U	2.2 U	3	4.5 U/4.4 U	4.4 U/2.5	27	30	26	29
beta-BHC	µg/L	19 U	7.4 U	9.3 U	15 U/15 U	15 U/5.46 J	15 U	15 U	15 U	15 U
delta-BHC	µg/L	30 U	10 U	10 U	20 U/20 U	20 U/2 U	40	44	45	30 J
gamma-BHC (lindane)	µg/L	26 U	10 U	13 U	21 U/21 U	21 U/2.1 U	34	35	48.4	38
Hexachlorobenzene	µg/L	50 U	20 U	25 U	40 U/40 U	40 U/5.2	40 U	40 U	40 U	40 U
Hexachlorobutadiene	µg/L	693	412	617 U	875/823	667/637	597	710	708 U	698
Hexachloroethane	µg/L	1240	830	1070 U	1030/975	664/636	735	853	827 U	767
<b>Volatile Organic Compounds</b>										
1,1,1-Trichloroethane	µg/L	500 U	110	500 U	500 U/500 U	500 U/70	50 U	50 U	50 U	100 U
1,2-Dichloroethane	µg/L	2600	1720	2200	2600/2200	1500/1370	200	280	490	300
1,2-Dichloropropane	µg/L	2500	2090	2800	3400/2900	2100/1890	50 U	80	230	100
Benzene	µg/L	500 U	50 U	500 U	500 U/500 U	500 U/50 U	1170	1040	1260	820
Carbon tetrachloride	µg/L	20800	50 U	22000	20300/20000	15200/12300	860	1340	2270	1800
Chloroform (Trichloromethane)	µg/L	38500	50 U	28000	25500/25700	26300/21700	1690	4080	4410	4020
Chloromethane (Methyl chloride)	µg/L	500 U	50 U	500 U	500 U/500 U	500 U/50 U	50 U	50 U	50 U	100 U
Methylene chloride	µg/L	4900	3180	3200	3000/2600	2500/2000	2550	2010	2410	2300
Tetrachloroethene	µg/L	14700	50 U	9900	9900/9300	7100/6070	5640	8510	8800	7300
Trichloroethene	µg/L	1200	870	1100	1300/1100	700/610	250	340	460	360
Vinyl chloride	µg/L	500 U	50 U	500 U	500 U/500 U	500 U/50 U	50 U	50 U	50 U	100 U
<b>General Chemistry</b>										
Chloride	µg/L	5000000	5900000	5500000 J	4050000/4240000	3190000/3210000	2760000	3200000	3450000 J	2720000

Notes:

U Not Detected

J Estimated Value

x/x Sample result/Duplicate result

Table A.6

**Summary of Groundwater Analytical Results**  
**Landfill Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	IW31	IW32	IW32	IW32	IW32	IW32	IW32	IW36	IW36	IW36
Sample ID:	WG-06192015-JR-IW31	GW-05182011-JH-IW32	WG-05172012-BS-IW32	WG-05172013-MC-IW32	WG-05222014-JR-IW32	WG-06192015-JR-IW32	GW-05132011-JH-IW36	WG-05142012-MC-IW36	WG-05172013-MC-IW36	
Sample Date:	6/19/2015	5/18/2011	5/17/2012	5/17/2013	5/22/2014	6/19/2015	5/13/2011	5/14/2012	5/17/2013	
<b>Parameters</b>										
<b>Units</b>										
<b>Herbicides</b>										
2,4-Dichlorophenoxyacetic acid (2,4-D)	µg/L	230	170	63/58	32	30	15	1.0 U	1.0 U	1.0 U
Pentachlorophenol	µg/L	57	180	200/210	140	100	70	0.5 U	0.5 U	0.5 U
<b>Semi-volatile Organic Compounds</b>										
2,3,4,5-Tetrachlorophenol	µg/L	19.3	78	48.3/52.0	26.6	5.0 U	19.7	5.0 U	5.0 U	5.0 U
2,3,4,6-Tetrachlorophenol	µg/L	19.3	78	48.3/52.0	26.6	28.1	19.7	5.0 U	5.0 U	5.0 U
2,4,5-Trichlorophenol	µg/L	5.0 U	10 U	5.0 U/5.0 U	5.0 U	5.0 U	5.7 U	5.0 U	5.0 U	5.0 U
2,4,6-Trichlorophenol	µg/L	97.5 J	159	124/133	70	57.2	28.4	5.0 U	5.0 U	5.0 U
2,4-Dichlorophenol	µg/L	53.6	426	5.0 U/5.0 U	161	120	75.9	31.5	18	5.0 U
2,5-Dichlorophenol	µg/L	5.0 U	10 U	5.0 U/5.0 U	5.0 U	5.0 U	5.7 U	5.0 U	5.0 U	5.0 U
2,6-Dichlorophenol	µg/L	41.3	132	107/109	50.2	26.8	13.1	6.3	6	5.0 U
2-Chlorophenol	µg/L	11.2	10 U	5.0 U/5.0 U	5.0 U	5.0 U	5.7 U	5.0 U	5.0 U	5.0 U
3/4-Chlorophenol	µg/L	6.8	10 U	8.9/9.5	8.3	7.8	5.7 U	5.0 U	5.0 U	5.0 U
alpha-BHC	µg/L	12	1.73	1.47/1.55 J	0.768	0.793	0.798 J	0.025 J	0.03	0.022
beta-BHC	µg/L	15 U	1.85	1.61/1.64 J	1.49 J	2.19	1.48 J	0.359 J	0.347	0.298
delta-BHC	µg/L	20 U	0.81	0.95/1.0 J	0.42	0.4 J	0.42 J	0.05 U	0.05 U	0.05 U
gamma-BHC (lindane)	µg/L	21 U	1.34	1.25/1.31 J	0.524 J	1.01	0.814 J	0.052 U	0.052 U	0.052 U
Hexachlorobenzene	µg/L	40 U	0.37	0.50 U/0.50 U	0.40 U	0.50 U	0.18 J	0.10 U	0.10 U	0.10 U
Hexachlorobutadiene	µg/L	604	0.63	3.3/3.5 J	1.9 U	1.5	2.29 J	0.02 U	0.02 U	0.02 U
Hexachloroethane	µg/L	765	4.59	13.3/15.1 J	11.2 U	8.36	10.9	0.02 U	0.02 U	0.02 U
<b>Volatile Organic Compounds</b>										
1,1,1-Trichloroethane	µg/L	90	5 U	5 U/5 U	5 U	5 U	5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	µg/L	520	39	60/58	82	54	52	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	µg/L	280	5 U	5 U/5 U	5 U	5 U	5 U	0.5 U	0.5 U	0.5 U
Benzene	µg/L	500	234	364/348	249	242	230	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	µg/L	3400 J	182	425/381	234	291	205	18.8 J	18.5	19.5
Chloroform (Trichloromethane)	µg/L	6700	453	562/552	504	402	359	5.4	5.7	5.8
Chloromethane (Methyl chloride)	µg/L	50 U	5 U	5 U/5 U	5 U	5 U	5 U	0.5 U	0.5 U	0.5 U
Methylene chloride	µg/L	2250 J	85	79/78	63	49	41	0.5 U	0.5 U	0.5 U
Tetrachloroethene	µg/L	8250	114	263/259	157	169	140	0.9	1	0.8
Trichloroethene	µg/L	510	31	65/61	51	38	34	0.5 U	0.5 U	0.5 U
Vinyl chloride	µg/L	50 U	5 U	5 U/5 U	5 U	5 U	5 U	0.5 U	0.5 U	0.5 U
<b>General Chemistry</b>										
Chloride	µg/L	2320000	2420000	2340000/2130000	2290000 J	1780000	1450000	850000	840000	910000 J

Notes:

U Not Detected

J Estimated Value

x/x Sample result/Duplicate result

Table A.6

**Summary of Groundwater Analytical Results**  
**Landfill Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	IW36	IW36	MW02S1	MW02S1	MW02S1	MW02S1	MW02S1	MW02S1	MW02S2
Sample ID:	WG-06112014-JR-IW36	WG-06192015-JR-IW36	GW-05122011-JH-MW02S1	WG-05212012-BS-MW2S1	WG-052313-JR-MW02S1	WG-05062014-AK-MW02S1	WG-06092015-JR-MW02S1	WG-06092015-JR-MW02S1	GW-05122011-JH-MW02S2
Sample Date:	6/11/2014	6/19/2015	5/12/2011	5/21/2012	5/23/2013	5/6/2014	6/9/2015		5/12/2011
<b>Parameters</b>									
<b>Herbicides</b>									
2,4-Dichlorophenoxyacetic acid (2,4-D)	µg/L	1.0 U	1.1 U	1.7	1.0 U	1.4	1	1.0 U	1.0 U
Pentachlorophenol	µg/L	0.5 U	0.6 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
<b>Semi-volatile Organic Compounds</b>									
2,3,4,5-Tetrachlorophenol	µg/L	5.0 U	5.9 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,3,4,6-Tetrachlorophenol	µg/L	5.0 U	5.9 U	5.0 U	5.0 UJ	5.0 U	5.0 U	5.0 U	5.0 U
2,4,5-Trichlorophenol	µg/L	5.0 U	5.9 U	5.0 U	5.0 UJ	5.0 U	5.0 U	5.0 U	5.0 U
2,4,6-Trichlorophenol	µg/L	5.0 U	5.9 U	5.0 U	5.0 UJ	5.0 U	5.0 U	5.0 U	5.0 U
2,4-Dichlorophenol	µg/L	5.0 U	5.9 U	5.0 U	5.0 UJ	5.0 U	5.0 U	5.0 U	5.0 U
2,5-Dichlorophenol	µg/L	5.0 U	5.9 U	5.0 U	5.0 UJ	5.0 U	5.0 U	5.0 U	5.0 U
2,6-Dichlorophenol	µg/L	5.0 U	5.9 U	5.0 U	5.0 UJ	5.0 U	5.0 U	5.0 U	5.0 U
2-Chlorophenol	µg/L	5.0 U	5.9 U	5.0 U	5.0 UJ	5.0 U	5.0 U	5.0 U	5.0 U
3/4-Chlorophenol	µg/L	5.0 U	5.9 U	5.0 U	5.0 UJ	5.0 U	5.0 U	5.0 U	5.0 U
alpha-BHC	µg/L	0.012	0.021	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.046 J
beta-BHC	µg/L	0.281	0.303	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.896 J
delta-BHC	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
gamma-BHC (lindane)	µg/L	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U
Hexachlorobenzene	µg/L	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Hexachlorobutadiene	µg/L	0.02 U	1.88	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Hexachloroethane	µg/L	0.02 U	0.31	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
<b>Volatile Organic Compounds</b>									
1,1,1-Trichloroethane	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U
1,2-Dichloroethane	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U
1,2-Dichloropropane	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U
Benzene	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U
Carbon tetrachloride	µg/L	20.1	14.4	0.5 U	0.5 U	0.5 U	0.5 U	2.2	154
Chloroform (Trichloromethane)	µg/L	6.3	5.8	0.9	1.8	1	2.3	4.8	24
Chloromethane (Methyl chloride)	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U
Methylene chloride	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U
Tetrachloroethene	µg/L	0.7	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3
Trichloroethene	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U
Vinyl chloride	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U
<b>General Chemistry</b>									
Chloride	µg/L	874000	830000	143000	133000	127000	143000	142000	2490000

Notes:

U Not Detected

J Estimated Value

x/x Sample result/Duplicate result

Table A.6

**Summary of Groundwater Analytical Results**  
**Landfill Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	MW02S2	MW02S2	MW02S2	MW02S2	MW02S3	MW12S1A	MW12S1A	MW12S1A	
Sample ID:	WG-05212012-BS-MW2S2	WG-052313-JR-MW02S2	WG-05062014-AK-MW02S2	WG-06162015-AK-MW02S2	GW-05122011-JH-MW02S3	GW-05162011-JH-MW12S1	WG-110711-MC-MW12S1A	WG-05222012-BS-MW12S1A	
Sample Date:	5/21/2012	5/23/2013	5/6/2014	6/16/2015	5/12/2011	5/16/2011	11/7/2011	5/22/2012	
<b>Parameters</b>		<b>Units</b>							
<b>Herbicides</b>									
2,4-Dichlorophenoxyacetic acid (2,4-D)	µg/L	25	8.4	8	1.0 U/1.8	1.0 U	2.4	38	160
Pentachlorophenol	µg/L	0.5 U	0.5 U	0.5 U	0.5 U/0.5 U	0.5 U	5.4	5.8	4
<b>Semi-volatile Organic Compounds</b>									
2,3,4,5-Tetrachlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.7 U/5.0 U	5.0 U	5.0 U	8.1	24
2,3,4,6-Tetrachlorophenol	µg/L	5.0 UJ	5.0 U	5.0 U	5.7 U/5.0 U	5.0 U	5.0 U	8.1	24.0 J
2,4,5-Trichlorophenol	µg/L	5.0 UJ	5.0 U	5.0 U	5.7 U/5.0 U	5.0 U	5.0 U	5.0 U	5.0 UJ
2,4,6-Trichlorophenol	µg/L	13.7 J	12.2	8.5	10.5/10.1	5.0 U	83.6	109	5.0 UJ
2,4-Dichlorophenol	µg/L	5.0 UJ	280	165	259/248	5.0 U	282	294	5.0 UJ
2,5-Dichlorophenol	µg/L	5.0 UJ	5.0 U	5.0 U	5.7 U/5.0 U	5.0 U	5.0 U	5.0 U	5.0 UJ
2,6-Dichlorophenol	µg/L	58.2 J	43.3	36.6	31.8/32.1	5.0 U	151	80.1	131 J
2-Chlorophenol	µg/L	19.6 J	11.1	5.0 U	5.7 U/5.0 U	5.0 U	5.0 U	30.4	39.5 J
3/4-Chlorophenol	µg/L	5.0 UJ	5.0 U	5.0 U	5.7 U/5.0 U	5.0 U	22.5	5.0 U	12.9 J
alpha-BHC	µg/L	0.151	0.111	0.092	0.113/0.111	0.044	0.552	0.553	1.07
beta-BHC	µg/L	1.31	1.48	1.26	1.61/1.59	2.44	0.845 J	1.03	1.75
delta-BHC	µg/L	0.05 U	0.05 U	0.05 U	0.05 U/0.05 U	0.05 U	0.56	0.64	1.4
gamma-BHC (lindane)	µg/L	0.052 U	0.052 U	0.052 U	0.052 U/0.052 U	0.052 U	0.536 J	0.577	1.16
Hexachlorobenzene	µg/L	0.10 U	0.10 U	0.10 U	0.10 U/0.10 U	0.10 U	0.40 U	0.40 U	1.1 U
Hexachlorobutadiene	µg/L	0.02 U	2.85	0.02 U	0.02 U/0.02 U	0.02 U	4.53	6.77	12.6
Hexachloroethane	µg/L	0.02 U	0.29	0.02 U	0.02 U/0.02 U	0.02 U	9.71 J	18.6	34.4
<b>Volatile Organic Compounds</b>									
1,1,1-Trichloroethane	µg/L	3 U	2 U	2	3.0/3.0	2 U	100 U	200 U	100 U
1,2-Dichloroethane	µg/L	3 U	2 U	2 U	2 U/2 U	2 U	100	200	380
1,2-Dichloropropane	µg/L	3 U	2 U	2 U	2 U/2 U	2 U	100	300	520
Benzene	µg/L	6.4	8.9	6	11.0/12.0	2 U	100 U	200 U	100 U
Carbon tetrachloride	µg/L	92.5	118	106	99.2/106	83.8	3790	4920	9810
Chloroform (Trichloromethane)	µg/L	33	41.9	40.9	32/33	16	12800	17700	100 U
Chloromethane (Methyl chloride)	µg/L	3 U	2 U	2 U	2 U/2 U	2 U	100 U	200 U	100 U
Methylene chloride	µg/L	3 U	2 U	2 U	2 U/2 U	2 U	100 U	2200	3200
Tetrachloroethene	µg/L	3	7	6.5	6.1/6.2	2	1200	1500	3520
Trichloroethene	µg/L	3 U	2 U	2 U	2 U/2 U	2 U	100	200 U	240
Vinyl chloride	µg/L	3 U	2 U	2 U	2 U/2 U	2 U	100 U	200 U	100 U
<b>General Chemistry</b>									
Chloride	µg/L	1790000	1390000	1200000	1090000/1110000	3740000	1130000 J	1270000	2560000

Notes:

U Not Detected

J Estimated Value

x/x Sample result/Duplicate result

Table A.6

**Summary of Groundwater Analytical Results**  
**Landfill Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	MW12S1A	MW12S1A	MW12S3						
Sample ID:	WG-11062012-MC-MW12S1A	WG-05202013-DH-MW12S1A	WG-11072013-AK-MW12S1A	WG-05202014-AK-MW12S1A	WG-11112014-AK-MW12S1A	WG-06172015-JR-MW12S1A	WG-11082015-JR-MW12S1A	WG-05162011-JH-MW12S3	
Sample Date:	11/6/2012	5/20/2013	11/7/2013	5/20/2014	11/11/2014	6/17/2015	11/8/2015	5/16/2011	
<b>Parameters</b>		<b>Units</b>							
<b>Herbicides</b>									
2,4-Dichlorophenoxyacetic acid (2,4-D)	µg/L	79	24	39	5	1.0 U/1.0 U	1.0 U	1.0 U	1.0 U
Pentachlorophenol	µg/L	7.0 J	5.9 J	3.7 J	5.1	3.3/2.9	2.4 J	0.6	0.5 U
<b>Semi-volatile Organic Compounds</b>									
2,3,4,5-Tetrachlorophenol	µg/L	30.1	17.5	5.0 U	5.0 U	5.0 U/5.0 U	5.0 U	5.0 U	5.0 U
2,3,4,6-Tetrachlorophenol	µg/L	30.1	17.5	12.5	9.5	5.0 U/5.0 U	5.0 U	5.0 U	5.0 U
2,4,5-Trichlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U/5.0 U	5.0 U	5.0 U	5.0 U
2,4,6-Trichlorophenol	µg/L	235	108	77.8	72.7	37.8/39.5	33.4	18.7	5.0 U
2,4-Dichlorophenol	µg/L	646	348	193	206	149/157	210	98.3	5.0 U
2,5-Dichlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U/5.0 U	5.0 U	5.0 U	5.0 U
2,6-Dichlorophenol	µg/L	157	75.8	51.4	109	79.5/84.4	102	55.7	5.0 U
2-Chlorophenol	µg/L	51.2	35.1 J	15.4	6.7	5.0 U/5.0 U	5.0 U	5.0 U	5.0 U
3/4-Chlorophenol	µg/L	17.3	8.3	6.4	20.7	15.1/16.1	15.6 J	10.2	5.0 U
alpha-BHC	µg/L	0.841 J	0.47 J	0.48 J	0.67 J	0.708 J/0.731 J	0.687 J	0.474	0.11 U
beta-BHC	µg/L	1.40 J	1.25 J	1.38 J	1.03 J	0.592 J/0.601 J	0.573 J	0.354	22.6 J
delta-BHC	µg/L	1.3 J	0.6 J	0.60 J	0.6 J	1.0 J/0.99 J	0.84 J	0.57	0.5 U
gamma-BHC (lindane)	µg/L	0.833 J	0.52 U	0.522 J	0.84 J	0.942 J/0.956 J	0.874 J	0.579	0.52 UJ
Hexachlorobenzene	µg/L	0.40 U	1.0 U	0.50 U	1.0 U	0.40 U/0.25 U	0.20 U	0.20 U	1.0 U
Hexachlorobutadiene	µg/L	10.0 J	11.4 U	9.08 J	7.9 J	5.69 J/5.27 J	3.66 J	3.15	3.9
Hexachloroethane	µg/L	29.2	28.2 U	25.0 J	17.2 J	9.55 J/8.43 J	6.71 J	5.48	2.4 J
<b>Volatile Organic Compounds</b>									
1,1,1-Trichloroethane	µg/L	200 U	100 U	500 U	500 U	300 U/300 U	500 U	200 U	5 U
1,2-Dichloroethane	µg/L	400	200	500 U	500 U	300 U/300 U	500 U	200 U	5 U
1,2-Dichloropropane	µg/L	570	470	500 U	500 U	300 U/300 U	500 U	200 U	5 U
Benzene	µg/L	200 U	100 U	500 U	500 U	300 U/300 U	500 U	200 U	5 U
Carbon tetrachloride	µg/L	10000	8460	7300	4300	2100/2100	1900	1600	242
Chloroform (Trichloromethane)	µg/L	27900	24000	19000	13600	6660/6670	6400	4250	16
Chloromethane (Methyl chloride)	µg/L	200 U	100 U	500 U	500 U	300 U/300 U	500 U	200 U	5 U
Methylene chloride	µg/L	2700	1300	600	500 U	300 U/300 U	500 U	200 U	5 U
Tetrachloroethene	µg/L	3000	2200	2000	1400	800/800	500	540	125
Trichloroethene	µg/L	200	200	500 U	500 U	300 U/300 U	500 U	200 U	5 U
Vinyl chloride	µg/L	200 U	100 U	500 U	500 U	300 U/300 U	500 U	200 U	5 U
<b>General Chemistry</b>									
Chloride	µg/L	2540000	2160000	1680000	1330000	820000/809000	900000	730000	134000 J

Notes:

U Not Detected

J Estimated Value

x/x Sample result/Duplicate result

Table A.6

**Summary of Groundwater Analytical Results**  
**Landfill Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	MW12S3	MW12S3	MW12S3	MW12S3	MW12S3	MW12S3	MW12S3	MW12S3	MW12S3
Sample ID:	WG-110711-MC-MW12S3	WG-05222012-BS-MW12S3	WG-11062012-MC-MW12S3	WG-05282013-JR-MW12S3	WG-11132013-JR-MW12S3	WG-05222014-JR-MW12S3	WG-11112014-JR-MW12S3	WG-06172015-JR-MW12S3	WG-06172015-JR-MW12S3
Sample Date:	11/7/2011	5/22/2012	11/6/2012	5/28/2013	11/13/2013	5/22/2014	11/11/2014	6/17/2015	
<b>Parameters</b>		<b>Units</b>							
<b>Herbicides</b>									
2,4-Dichlorophenoxyacetic acid (2,4-D)	µg/L	1.0 U							
Pentachlorophenol	µg/L	0.5 U	0.5 UJ						
<b>Semi-volatile Organic Compounds</b>									
2,3,4,5-Tetrachlorophenol	µg/L	5.0 U							
2,3,4,6-Tetrachlorophenol	µg/L	5.0 U	5.0 UJ	5.0 U					
2,4,5-Trichlorophenol	µg/L	5.0 U	5.0 UJ	5.0 U					
2,4,6-Trichlorophenol	µg/L	5.0 U	5.0 UJ	5.0 U					
2,4-Dichlorophenol	µg/L	5.0 U	5.0 UJ	5.0 U					
2,5-Dichlorophenol	µg/L	5.0 U	5.0 UJ	5.0 U					
2,6-Dichlorophenol	µg/L	5.0 U	5.0 UJ	5.0 U					
2-Chlorophenol	µg/L	5.0 U	5.0 UJ	5.0 U					
3/4-Chlorophenol	µg/L	5.0 U	5.0 UJ	5.0 U	5.0 UJ				
alpha-BHC	µg/L	0.11 U	0.15	0.456	0.071	0.22 U	0.068	0.050 J	0.023
beta-BHC	µg/L	23	48.8	25.7	9.07	37.5	4.28	12.5 J	5.87
delta-BHC	µg/L	0.5 U	0.5 U	0.06	0.05 U	1 U	0.05 U	0.2 U	0.05 U
gamma-BHC (lindane)	µg/L	0.52 U	0.52 U	0.052 U	0.052 U	1.0 U	0.052 U	0.21 U	0.052 U
Hexachlorobenzene	µg/L	1.0 U	1.0 U	0.10 U	0.10 U	2.0 U	0.10 U	0.40 U	0.10 U
Hexachlorobutadiene	µg/L	2.3	1.5	1.72	1.22	0.9	1.02	0.72 J	0.52
Hexachloroethane	µg/L	0.9	0.3	0.5	0.61	0.4 U	0.76	0.3 J	0.43
<b>Volatile Organic Compounds</b>									
1,1,1-Trichloroethane	µg/L	3 U	0.5 U	5 U	1 U	0.5 U	5 U	2 U	1 U
1,2-Dichloroethane	µg/L	3 U	0.5 U	5 U	1 U	0.5 U	5 U	2 U	1 U
1,2-Dichloropropane	µg/L	3 U	0.5 U	5 U	1 U	0.5 U	5 U	2 U	1 U
Benzene	µg/L	3 U	0.5 U	5 U	1 U	0.5 U	5 U	2 U	1 U
Carbon tetrachloride	µg/L	153	18.1	86	104	8.6	109	65.6	93.8
Chloroform (Trichloromethane)	µg/L	196	2.2	19	106	3.1	119	45.3	37.3
Chloromethane (Methyl chloride)	µg/L	3 U	0.5 U	5 U	1 U	0.5 U	5 U	2 U	1 U
Methylene chloride	µg/L	3 U	0.5 U	5 U	1 U	0.5 U	5 U	2 U	1 U
Tetrachloroethene	µg/L	51.5	18.9	41	43.9	9.3	49	30	33.3
Trichloroethene	µg/L	3 U	0.5 U	5 U	2	0.5 U	5 U	2 U	1 U
Vinyl chloride	µg/L	3 U	0.5 U	5 U	1 U	0.5 U	5 U	2 U	1 U
<b>General Chemistry</b>									
Chloride	µg/L	143000	69000	168000	229000	121000	220000	130000	173000

Notes:

U Not Detected

J Estimated Value

x/x Sample result/Duplicate result

Table A.6

**Summary of Groundwater Analytical Results**  
**Landfill Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	MW12S3	MW29S1	MW29S1	MW29S1	MW29S1	MW29S1	MW29S1	MW29S2	MW29S2
Sample ID:	WG-11082015-JR-MW12S3	GW-05172011-JH-MW29S1	WG-05162012-AY-MW29S1	WG-05202013-JR-MW29S1	WG-05192014-JR-MW29S1	WG-06162015-JR-MW29S1	GW-05172011-JH-MW29S2	WG-05162012-AY-MW29S2	
Sample Date:	11/8/2015	5/17/2011	5/16/2012	5/20/2013	5/19/2014	6/16/2015	5/17/2011	5/16/2012	
<b>Parameters</b>									
<b>Units</b>									
<b>Herbicides</b>									
2,4-Dichlorophenoxyacetic acid (2,4-D)	µg/L	1.0 U/1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.1	1.4
Pentachlorophenol	µg/L	0.5 U/0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
<b>Semi-volatile Organic Compounds</b>									
2,3,4,5-Tetrachlorophenol	µg/L	5.0 U/5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,3,4,6-Tetrachlorophenol	µg/L	5.0 U/5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,4,5-Trichlorophenol	µg/L	5.0 U/5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,4,6-Trichlorophenol	µg/L	5.0 U/5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	15.1	16.1
2,4-Dichlorophenol	µg/L	5.0 U/5.0 U	7.5	6.7	5.0 U	5.0 U	5.0 U	98.7	93
2,5-Dichlorophenol	µg/L	5.0 U/5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,6-Dichlorophenol	µg/L	5.0 U/5.0 U	5.8	5.0 U	5.0 U	5.0 U	5.0 U	31.9	35.8
2-Chlorophenol	µg/L	5.0 U/5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.1	5.0 U
3/4-Chlorophenol	µg/L	5.0 U/5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	19	12.7
alpha-BHC	µg/L	0.044 U/0.044 U	0.012	0.025	0.017	0.023 U	0.021	0.638	0.562
beta-BHC	µg/L	15.7/14.0	0.243	0.253	0.191	0.243	0.232	2.54	2.57
delta-BHC	µg/L	0.2 U/0.2 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.13
gamma-BHC (lindane)	µg/L	0.21 U/0.21 U	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U
Hexachlorobenzene	µg/L	0.40 U/0.40 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Hexachlorobutadiene	µg/L	0.48/0.41	0.02 U	0.02 U	0.10 U	0.02 U	0.02 U	0.02 U	0.02 U
Hexachloroethane	µg/L	0.2/0.2	0.02 U	0.02 U					
<b>Volatile Organic Compounds</b>									
1,1,1-Trichloroethane	µg/L	1 U/0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3 U	3 U
1,2-Dichloroethane	µg/L	1 U/0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	71.7	78.2
1,2-Dichloropropane	µg/L	1 U/0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3 U	3 U
Benzene	µg/L	1 U/0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	139	112
Carbon tetrachloride	µg/L	66.4/82.9	7.8	36.4	88.8	18.9	17.2	3 U	3 U
Chloroform (Trichloromethane)	µg/L	26.3/31.9	3.6	6.3	9.2	8.3	8.5	3	3 U
Chloromethane (Methyl chloride)	µg/L	1 U/0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3 U	3 U
Methylene chloride	µg/L	1 U/0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3 U	3 U
Tetrachloroethene	µg/L	24.7/28.8	0.5 U	0.6	0.5 U	0.8	0.9	3 U	3 U
Trichloroethene	µg/L	1 U/0.5 U	0.5 U	0.5 U	0.5	0.7	0.9	30	29
Vinyl chloride	µg/L	1 U/0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3 U	3 U
<b>General Chemistry</b>									
Chloride	µg/L	136000/128000	1150000 J	1100000	900000	1320000	880000	8600000 J	7500000

Notes:

U Not Detected

J Estimated Value

x/x Sample result/Duplicate result

Table A.6

**Summary of Groundwater Analytical Results**  
**Landfill Area**  
**Occidental Chemical Corporation**  
**Wichita, Kansas**

Sample Location:	MW29S2	MW29S2	MW29S2	MW29S3	MW29S3	MW29S3	MW29S3	MW29S3	
Sample ID:	WG-05202013-JR-MW29S2	WG-05092014-JR-MW29S2	WG-06162015-JR-MW29S2	GW-05182011-JH-MW29S3	WG-05162012-AY-MW29S3	WG-05202013-JR-MW29S3	WG-05192014-JR-MW29S3	WG-06162015-JR-MW29S3	
Sample Date:	5/20/2013	5/9/2014	6/16/2015	5/18/2011	5/16/2012	5/20/2013	5/19/2014	6/16/2015	
<b>Parameters</b>		<b>Units</b>							
<b>Herbicides</b>									
2,4-Dichlorophenoxyacetic acid (2,4-D)	µg/L	1.0 U	1.0 U	1.0 U	3	22 J/1.3 J	7.1 J	1.2 J	3 U
Pentachlorophenol	µg/L	0.5 U	0.5 U	0.5 U	3.3	5.6 J/0.5 UJ	12	7.8	9.6 J
<b>Semi-volatile Organic Compounds</b>									
2,3,4,5-Tetrachlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U/5.0 U	10.4	5.0 U	10.6
2,3,4,6-Tetrachlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U/5.0 U	10.4	5.0 U	10.6
2,4,5-Trichlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U/5.0 U	5.0 U	5.0 U	5.0 U
2,4,6-Trichlorophenol	µg/L	12.1	11.1	11.5	10.9	13.2/14.1	11.8	6.6	5.0 U
2,4-Dichlorophenol	µg/L	70.5	72.9	75.8	72.2	80.1/80.5	66.4	27.3	25.5
2,5-Dichlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U/5.0 U	5.0 U	5.0 U	5.0 U
2,6-Dichlorophenol	µg/L	25.8	20.9	21.7	7.2	10.2 J/31.4 J	8.5	5.0 U	5.0 U
2-Chlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U/5.0 U	5.0 U	5.0 U	5.0 U
3/4-Chlorophenol	µg/L	9.2	7.8	7.8	5.0 U	5.0 U/13.9	5.0 U	5.0 U	5.0 U
alpha-BHC	µg/L	0.401	0.371	0.363	0.128 J	0.115 J/0.532 J	0.095 J	0.063	0.027 J
beta-BHC	µg/L	2.17	1.91	1.44	1.49 J	1.16 J/2.43 J	1.42 J	1.28 J	1.35 J
delta-BHC	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.08 J/0.07	0.05 U	0.05 U	0.05 U
gamma-BHC (lindane)	µg/L	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U/0.052 U	0.052 U	0.052 U	0.052 U
Hexachlorobenzene	µg/L	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U/0.10 U	0.10 U	0.10 U	0.10 U
Hexachlorobutadiene	µg/L	0.08 U	0.02 U	0.02 U	1.67 J	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U
Hexachloroethane	µg/L	0.04 U	0.02 U	0.02 U	0.36 J	0.02 U/0.02 U	0.02 U	0.02 U	0.02 U
<b>Volatile Organic Compounds</b>									
1,1,1-Trichloroethane	µg/L	3 U	2 U	2 U	5 U	3 U/2 U	6.3	5 U	10
1,2-Dichloroethane	µg/L	108	90.8	66	198	200 J/80.5 J	293	214	175
1,2-Dichloropropane	µg/L	3 U	2 U	2 U	5 U	3 U/2 U	3 U	5 U	3 U
Benzene	µg/L	87.1	59.8	62	7	5.1 J/126 J	8.4	5	4
Carbon tetrachloride	µg/L	3 U	2 U	2 U	5 U	3 U/2 U	3 U	5 U	3 U
Chloroform (Trichloromethane)	µg/L	3 U	2 U	2 U	5 U	3 U/2 U	3 U	5 U	3 U
Chloromethane (Methyl chloride)	µg/L	3 U	2 U	2 U	5 U	3 U/2 U	3 U	5 U	3 U
Methylene chloride	µg/L	3 U	2 U	2 U	5 U	3 U/2 U	3 U	5 U	3 U
Tetrachloroethene	µg/L	5.8	11	5.8	34	31 J/3 J	73.8	63	35
Trichloroethene	µg/L	37	40	29	146	68.2/34	104	105	118
Vinyl chloride	µg/L	3 U	2 U	2 U	5 U	3 U/2 U	3 U	5 U	3 U
<b>General Chemistry</b>									
Chloride	µg/L	5500000	4300000	4510000	1980000	2140000 J/8100000 J	1480000	1510000	740000

Notes:

U Not Detected

J Estimated Value

x/x Sample result/Duplicate result

# Appendix B

## Soil Gas Probe Installation and Soil Gas Sampling Protocols

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# 1 Soil Gas Probe Installation Procedures

## 1.1 Introduction

The procedures described in this section pertain to the installation of temporary and permanent soil gas probes to assess the vapor intrusion pathway. Permanent probes are recommended when more than one sampling event is required or when assessing seasonal variations in soil gas concentrations. Temporary probes are suitable for conducting a screening level assessment of vapor intrusion where the results could assist in locating future, permanent soil gas probes. Temporary probes are also suitable for conducting a preliminary evaluation of the magnitude and extent of volatile organic compound (VOC) impacts to the subsurface (e.g., such as in the case of a soil gas survey).

## 1.2 Prior Planning and Preparation

When designing and constructing soil gas probes the following questions should be considered:

1. What is the purpose of the soil gas probes?
2. What are the potential health and safety hazards?
3. What type(s) of soil gas probe construction materials are to be used?
4. What kinds of analyses are required (e.g., VOCs, petroleum hydrocarbon fractions)?
5. What are the geologic/hydrogeologic conditions at the site?
6. What are the seasonally high water table levels?
7. Do perched conditions exist at the site?
8. What is the anticipated total depth of the probes?
9. Are nested soil gas probes required for vertical delineations?

Note: If field staff are not aware of and able to answer all of the above noted questions before undertaking work in the field, the work plan must be reviewed in detail with the Project Coordinator/Manager.

## 1.3 Safety and Health

GHD is committed to conducting field activities with sound safety and health practices. GHD adheres to high safety standards to protect the safety and health of all employees, subcontractors, customers, and communities in which they work. The safety and health of our employees takes precedence over cost and schedule considerations.

Field personnel are required to implement the Safety Means Awareness Responsibility Teamwork (SMART) program as follows:

- Assure the Health and Safety Plan (HASP) is specific to the job and approved by a Regional Safety & Health Manager.
- Confirm that all HASP elements have been implemented for the job.

- A Job Safety Analysis (JSA) for each task has been reviewed, modified for the specific site conditions and communicated to all appropriate site personnel. The JSAs are a component of the HASP.
- Incorporate Stop Work Authority; Stop, Think, Act, Review (STAR) process; Safe Task Evaluation Process (STEP) Observations process; Near Loss and Incident Management process in the day-to-day operations of the job.
- Review and implement applicable sections of the GHD Safety & Health Policy Manual.
- Confirm that all site personnel have the required training and medical surveillance, as defined in the HASP.
- Be prepared for emergency situations, locating safety showers, fire protection equipment, evacuation route, rally point, and first aid equipment before you begin working, and make sure that the equipment is in good working order.
- Maintain all required Personal Protective Equipment (PPE), safety equipment, and instrumentation necessary to perform the work effectively, efficiently and safely.
- Be prepared to call the GHD Incident Hotline at 1-866-529-4886 for all incidents involving injury/illness, property damage, and vehicle incident and/or significant Near Loss.

It is the responsibility of the Project Manager to:

- Ensure that all GHD field personnel have received the appropriate health and safety and field training and are qualified to complete the work.
- Provide subcontractors with a Job Hazard Analysis to enable them to develop their own HASP.
- Ensure that all subcontractors meet GHD's (and the Client's) safety requirements.

## 1.4 Quality Assurance/Quality Control

Quality assurance and quality control procedures should be implemented in every step of the assessment process to ensure the collection of data of acceptable quality. A well-designed Quality Assurance/Quality Control (QA/QC) program will:

- Ensure that data of sufficient quality are obtained in order to facilitate an efficient site investigation.
- Allow for monitoring of staff and subcontractor performance.
- Verify the quality of the data for the regulatory agency.

The QA/QC program is developed on a site-specific basis.

## 1.5 Equipment Decontamination

Prior to use between gas probe locations, drilling and sampling equipment must be decontaminated in accordance with the Work Plan, the Quality Assurance Project Plan (QAPP), or the methods presented in the following section.

The minimal procedures for decontamination of drilling or excavating equipment are:

1. High pressure hot water detergent wash (brushing as necessary to remove particulate matter).

2. Potable, hot water, high pressure rinse.

Cover clean equipment with clean plastic sheeting to prevent contact with foreign materials.

On environmental sites, soil sampling equipment (e.g., split-spoons, trowels, spoons, shovels, and bowls) is typically cleaned as follows:

1. Wash with clean potable water and laboratory detergent, using a brush as necessary to remove particulates
2. Rinse with potable water
3. Rinse with deionized water
4. Air dry for as long as possible

**Caution:** Confirm the cleaning protocol for the QAPP. The use of incorrect cleaning protocol can invalidate chemical data.

## **1.6 Installation Procedures**

Direct-push drilling methods (e.g., Geoprobe®) are most commonly used for soil gas probe installation, although hollow-stem augers are also applied.

## **1.7 Field Procedures**

The following presents the field procedure requirements and techniques for the installation of soil gas probes.

### **1.7.1 Design Considerations**

#### *Diameter*

The probe casing diameter should be kept to a minimum to reduce the volume of soil gas that must be purged from the probe during sampling. A maximum casing diameter of 3/4 inch (19 millimeters [mm]) to 1 inch (25 mm) will be used for solid piping casing material (e.g., polyvinyl chloride [PVC]), although casing diameters this large are not recommended for deep soil gas probes (e.g., greater than 15 feet [4.6 meters (m)]) since large purge volumes (e.g., milliliters) will result. Casing diameters of 1/4 inch (6.4 mm) to 3/8 inch (9.5 mm) are typical when flexible tubing is used for the casing material (e.g., Teflon® or nylon).

#### *Screened Interval and Sand Pack Material*

The length and depth of the perforated (screened) section should consider the desired monitoring interval as well as the geologic conditions encountered. A typical screened section would consist of a 6-inch (0.15 m) to 1-foot (0.3 m) perforated section. The use of prefabricated stainless steel screen implants is common. Alternatively, the screened interval can be created from casing material by hand-cutting slots, or hand-drilling holes, into the casing at a regular pattern. For hand-cut or hand-drilled screened intervals, the preferred sand pack material for soil gas probes is pea gravel. For prefabricated screens, the preferred sand pack material is inert 10/20 silica sand (#1 morie sand) or glass beads.

### ***Monitoring Parts***

For soil gas probes, airtight stainless steel or brass compression fittings (e.g., Swagelok®) with valves should be installed at ground surface to allow for an airtight connection to sampling equipment. The valve is required to isolate the soil gas sampling assembly from the soil gas probe while sampling assembly airtightness tests are conducted prior to probe purging and sampling.

### ***Casing Materials***

The materials selected for soil gas probe casing construction must be compatible with the volatile chemicals anticipated to be present in soil gas. Experience has shown that PVC casing is suitable when VOCs are present. However, as described above, PVC is typically not available in small enough diameters to provide practical soil gas probe purge volumes. To minimize purge volumes, small diameter (e.g., 1/4-inch [6.4-mm] to 3/8-inch [9.5-mm]) flexible tubing (e.g., Teflon® or nylon) is more commonly applied as the soil gas probe casing. Where solid casing is used (i.e., PVC), threaded piping will be used to avoid any possible contamination from solvent cement.

## 1.7.2 General Installation Procedures

### ***Annular Space***

The borehole diameter must be of sufficient size such that the soil gas probe construction can proceed without any major difficulties. Particular attention should be paid to preventing bridging of fill or seal materials.

### ***Instrumentation Details***

The length of each soil gas probe assembly (i.e., perforated section and riser components) must be measured and recorded prior to insertion into the augers or borehole.

### ***Sand Pack***

For soil gas probes, the screened interval and sand pack are to be placed:

- Preferably at a minimum 3 feet (1 m) below the ground surface (bgs) to reduce the potential for drawing ambient air into the screened interval during sampling. This depth may vary depending upon the ground surface (i.e., if the ground surface is paved or concrete covered, this depth could be reduced).
- In a soil strata with a notably higher permeability than the surrounding geologic strata. Coarse-textured strata with higher permeabilities have a greater potential for soil gas migration and therefore should be monitored.
- Above the seasonally high water table.

A common problem with the installation of soil gas probes is flooding of gas probes, which prevents their sampling. The problem is especially pronounced at sites with perched water tables. Soil gas probes are typically installed in more permeable strata where perched water tables are more likely to exist. A thorough understanding of the hydrogeology of the site is necessary to install effective soil gas probes.

As with monitoring wells, the sand pack of a soil gas probe should not extend through a confining layer causing two or more separate permeable layers to become connected.

When placing the sand pack into the borehole, 1 inch (2.5 cm) of filter pack material will be placed under the bottom of the probe screen to provide a firm footing. The sand pack will extend to 6 inches (15 cm) above the screened interval.

#### ***Bentonite Seal (Plug)***

A seal will be placed on top of the filter pack. This seal will consist of a high solids, pure bentonite material. Bentonite in either pellet or granular form is acceptable. Typically, pouring of the bentonite is acceptable in shallow gas probes where the annular space is large enough to prevent bridging and to allow measuring to ensure that the bentonite has been placed at the proper intervals. The bentonite seal will be placed above the filter pack and to a 1-foot (0.3 m) thickness. Since gas probes are installed above the water table, potable water will be used to hand-hydrate the bentonite.

#### ***Backfill***

The annular space between the bentonite seal will be filled with pre-hydrated bentonite cement to 1-foot (0.3 m) bgs. The remaining annular space will be filled with concrete in conjunction with setting the surface protective casing.

#### ***Flush-Mount Protective Surface Casing***

A flush-mount protective surface casing/vault (8-inch diameter) will be used to complete the soil gas probe at ground surface. A flush-mount casing is preferred due to the number of equipment pieces needed for the sampling assembly. Flush-mount casings allow the equipment to be laid on the ground during sampling, otherwise a portable table or other working surface will be needed to support the sampling equipment. The protective casings are cemented in place and usually fitted with locks or bolts, and rubber gaskets. The soil gas probe casing, when installed and grouted, will extend a sufficient distance into the surface casing to allow connection of the soil gas sampling assembly. In the case where flexible tubing is used for the soil gas probe casing, a short length of tubing can be coiled inside the surface casing. The vault will be traffic rated and water tight.

#### ***Soil Gas Probe Locations***

Soil gas probe locations will primarily be selected in the work plan to provide maximum anticipated soil gas impacts or in close proximity to buildings, and to suit the intended purpose of the study. Soil gas probes are commonly located adjacent to existing monitoring wells to allow an assessment of actual soil gas quality impacts attributable to shallow groundwater impacts detected at the monitoring well. Most often, the locations are not pre-verified to confirm clearance from underground or overhead utilities or to match the site's specific characteristics (i.e., traffic patterns, drainage patterns, etc.). Consequently, it is the Field Coordinator's task to select the exact location for each gas probe consistent with all of the site and study requirements. If a soil gas probe must be moved more than 20 feet (6 m) from the initially identified location, the Field Coordinator must confirm the selected location's suitability with the project coordinator.

To the extent practicable, soil gas probes should be located adjacent to permanent features (i.e., fences, buildings, etc.) that offer some form of protection and a reference point for locating the soil gas probe. Soil gas probes located in high traffic areas or road allowance right-of-ways are undesirable and should be avoided if possible. Low-lying areas are also undesirable to avoid potential flooding.

Field ties accurately identifying each gas probe location must be taken as soon as each gas probe is completed to insure that no confusion with other well installations occurs.

### 1.7.3 Specific Installation Procedures

The soil gas probe is to be installed using Geoprobe® dual tube sampling system to advance a borehole to the target depth. The dual-tube sampling system consists of first advancing a 2 1/2-inch (6.4 cm) diameter inner sampling probe followed by advancing a 3 1/2-inch (8.9 cm) diameter outer casing. The outer casing should cut away disturbed soil immediately surrounding the borehole left by the inner probe. The outer casing should create a zone of reduced soil disturbance due to the inner probe having already been advanced. It is anticipated that using the dual tube system will result in a minimum amount of soil disturbance around the borehole annulus. The soil lithology should be logged during drilling activities and recorded on a field boring log along with any applicable observations. Permanent soil vapor probes can be installed with a conventional drill rig equipped with a hollow-stem auger, although increased formation disturbances would likely result. Rotosonic and mud or air rotary drilling methods are not recommended since they can influence soil vapor sample results and/or alter the physical properties of the subsurface adjacent to the borehole annulus.

The probes should be constructed with a 6-inch (15 cm) to 12-inch (30 cm) long screened interval. The screened interval can be hand-fabricated or prefabricated. The probe casing should be constructed using flexible tubing or solid casing. Flexible tubing (e.g., Teflon® or nylon) of small diameter (e.g., 1/4-inch [6.4 mm] to 3/8-inch [9.5 mm]) is most commonly used in combination with prefabricated screened intervals. Solid casing (e.g., PVC) of small diameter (e.g., 3/4-inch [19 mm] to 1-inch [25 mm]) is most commonly used with hand-fabricated screened intervals. After positioning the screened interval and casing into the borehole, the screen should be surrounded by the appropriate sand pack material (i.e., pea gravel for hand-fabricated screens and 10/20 silica sand for prefabricated screens). When placing the sand pack into the borehole, 1 inch (2.5 cm) of sand pack material should be placed under the bottom of the probe screen to provide a firm footing. The sand pack should extend to 6 inches (15 cm) above the screened interval. A bentonite pellet seal should then be installed to 1-foot (0.3 m) above the sand pack and should be hand-hydrated. The remaining annulus should be backfilled with pre-hydrated bentonite cement. The soil gas probe casing should extend to ground surface and should be fitted with airtight stainless steel or brass compression fittings (e.g., Swagelok®) with valves to allow for an airtight connection to soil gas sampling equipment. A flush-mount protective cover should be installed above the soil probe and cemented into place. Schematics of typical soil gas probe installation details are presented on Figures B.1 and B.2, respectively, where hand-fabricated and prefabricated screened intervals are applied. A schematic of a typical temporary soil gas probe installation detail is presented on Figure B.3.

### 1.7.4 Installation Documentation

Details of each soil gas probe installation should be recorded on GHD's standard Stratigraphic Log Overburden or recorded within a standard GHD field book. A Well Instrumentation Log that is used for recording the overburden well instrumentation details can be used for soil gas probe installations. This figure must note:

- Borehole depth
- Probe perforation intervals

- Filter pack intervals
- Plug intervals
- Grout interval
- Surface cap detail
- Soil gas probe material
- Soil gas probe instrumentation (i.e., riser and screen length)
- Soil gas probe diameter
- Filter pack material
- Backfill material detail
- Stickup/flush-mount detail
- Date installed

The soil stratigraphy encountered at soil gas probes refusal must be recorded in accordance with GHD's standard borehole advancement methods.

Each soil gas probe should be accurately located on a site sketch. An accurate field tie to the center of the gas probe from three adjacent permanent features should be completed. The field ties should be located in a different direction from the installation.

Each soil gas probe must be permanently marked to identify the soil gas probe number designation.

#### 1.7.5 Follow-Up Activities

Once the soil gas probe(s) have been completed, the following activities need to be done:

1. Conduct initial monitoring round of gas probes.
2. Submit all logs to the appropriate GHD hydrogeology department, who will be responsible for the generation of the final well log.
3. Survey accurate horizontal and vertical control of the soil gas borings and any pertinent structures needed to create a suitable site map.
4. Prepare an accurate soil gas probe/boring location map. Tabulate soil gas probe construction details.
5. Write-up all field activities including, but not necessarily limited to; drilling method(s), construction material, site geology.
6. Distribute all/any field book(s) to the appropriate GHD office.

## 2 Soil Gas Probe Sampling Protocol

### 2.1 Prior Planning and Preparation

The following will be considered prior to soil gas sampling:

1. Review the work program, project documents and the Health and Safety requirements with the Project Coordinator.
2. Complete a Field Equipment Requisition Form (QSF-014). Assemble all equipment and supplies required.
3. Assemble site plan, available stratigraphic logs and previous sampling/purging data that will be required for the planned sample event. Determine the number and locations of the points to be sampled. In the case of advancing temporary soil gas probes, underground locates must be done and approved (Property Access/Utility Clearance Data Sheet QSF-019).
4. For the laboratory analysis, contact the GHD chemistry group to arrange:
  - Simplified Scope of Work (SSOW)
  - Laboratory
  - Sample containers
  - Coolers
  - Required sampling protocol, in addition to the protocol presented here
  - Sample shipping details
  - Provide starting date
  - Expected duration of sampling
5. Complete a Vendor Evaluation Form (QSF-012) and file in the Project file for any vendors that do not have full approval status or are not listed on the Approved Vendor List (QSL-004). Completion of a Safety and Health Schedule (QSF-031) is necessary for all Vendors who complete field services. Prior to mobilization on site, the Vendor must submit the form to the Regional Safety and Health Manager for review and approval (if not already posted on QSL-004).
6. Evaluate sample notification needs with the project coordinator. Has the regulatory groups, client personnel, landowner, GHD personnel, and laboratory been informed of pending sample events?
7. Arrange access to the site. Also consider site conditions.

### 2.2 General Field Procedures

Once the prior planning and preparation activities are completed, soil gas sampling can proceed at the respective sample points on sites. The soil gas samplers must familiarize themselves with the equipment available, and understand the equipment limitations and use. The following soil gas collection procedure outlines the most common method used by GHD in assessing the vapor intrusion pathway. The typical series of events that will take place are:

1. Sample location identification/inspection (see below for additional information).

2. Air monitoring (see below for additional information).
3. Decontamination (see below for additional information).
4. Field notes completion, review, checking.
5. Equipment return.
6. Documentation submitted to appropriate staff and files.

Further details regarding items 1 to 3 are provided below.

#### ***Sample Location Identification/Inspection***

Once at the site and prior to soil gas sampling, confirm that the sample location (i.e., soil gas probe location) has been correctly identified and located. Frequently, sites under evaluation have numerous sample locations and misrepresentation can easily occur.

In the case of temporary soil gas probe installations, the proposed soil gas probe locations marked on the site plan are located in the field and staked. Unless the soil gas probes are to be installed on a fixed grid, the proposed locations are usually strategically placed to assess site conditions. For evaluating vapor intrusion, permanent soil gas probes are preferable to allow for subsequent soil gas sampling events, if required.

In the case of temporary soil gas probe installations, once the final locations for the proposed soil gas probes have been selected and utility clearances are complete, one last check of the immediate area should be performed before drilling or insertion of the probe proceeds. This last visual check should confirm the locations of any adjacent utilities (subsurface or overhead) and verification of adequate clearance. If sewers or conduits exist in the area, any access manholes or chambers should be opened and the conduit/sewer alignments confirmed. Ensure a Property Access/Utility Clearance Data Sheet (QSF-019) has been completed prior to field activities.

**Caution:** Do not assume plan details regarding pipe alignments/position are correct. Visually check pipe position when drilling near sewers. Personnel should also be alert to the presence of additional yard piping if the plans are outdated.

If it is necessary to relocate any proposed temporary soil gas probes due to terrain, utilities, access, etc., the project coordinator must be notified and an alternate location will be selected and approved in the same manner.

#### ***Air Monitoring***

In the case of temporary soil gas probe installations, air monitoring may be required at the borehole advanced for inserting the soil gas probe sampling assembly. Prior to inserting the soil gas probe sampling assembly, measure the background air quality with a photoionization detector (PID) to establish baseline levels. Repeat this measurement at the borehole before the soil gas probe sampling assembly is inserted. If either of these measurements exceed any air quality criteria established in the HASP, then air purifying respirators (APRs) or supplied air systems will be required.

**Note:** This may not be required at all sites. Confirm with the project coordinator.

## ***Decontamination***

All drilling, soil gas sampling, and monitoring equipment must be decontaminated on site. If the site has a specific cleaning protocol, it must be followed. General cleaning procedures can be found in Section 1.5.

### **2.3 Soil Gas Sampling Protocol**

The following sampling protocols are for collecting a vapor sample through a soil gas probe for the analysis of volatile organic compounds (VOCs) by the United States Environmental Protection Agency Method TO-15 (USEPA, 1999).

This SOP does not cover, nor is it intended to provide, a justification or rationale for where a sampling point is installed. It is assumed by using this SOP that site conditions have been fully evaluated and that the sampling location and depth meet the objectives outlined in the work plan or scope of work. Considerations must be given to the types of chemicals of concern, lithology encountered, and the depth of the vapor source. Samples collected deeper than any potential source of vapors may not fully characterize the potential risk and sampling points should never be installed or collected within the zone of saturation.

Most soil gas probes are installed at relatively shallow depths (less than ten feet below ground surface) so minimum purge volumes and low-volume samples must be performed to minimize potential breakthrough from the surface or between sampling intervals. Tracer/leak gas is necessary to ensure breakthrough does not occur and that a leak does not occur at any fitting above grade. Sampling should not occur during a significant rain event. A significant rain event is defined as 0.5 inches or greater of rainfall during a 24-hour period by Cal EPA (2015), or 1 centimeter or greater of rainfall during a 24-hour period by MOE (2013). A period of 1 day for coarse-grained soil conditions and several days for fine-grained soil conditions after a significant rain event should occur prior to collecting soil vapor samples. This time interval is required for drainage to occur and soil conditions to return to ambient moisture conditions.

**Note:** The sampling interval after a significant event should be verified based on the applicable jurisdictional regulatory vapor intrusion guidance.

Samples from wells with multiple points installed must not be collected simultaneously and approximately 30 minutes must elapse between each sampled interval. Sample times should be documented on the field log. Sample flow rates are not to exceed 200 milliliters per minute (ml/min) to minimize the potential for vacuum extraction of contaminants from the soil phase. A flow rate greater than 200 mL/min may be used when purging times are excessive, such as for deep wells with larger-diameter tubing. However, a vacuum of 100 inches of water (7.4 inches of mercury [Hg]) or less must be maintained during sampling whenever a higher flow rate is used. Volumes of various tubing sizes are provided in Table 1 in order to aid in calculating purge volumes.

**Table 1      Volumes for Select Tubing Sizes**

Tubing Size (inches ID)	Volume/ft (liters)
3/16	0.005
1/4	0.010
1/2	0.039

Care must be used during all aspects of sample collection to ensure that sampling error is minimized and high quality data are obtained. Care must also be taken to avoid excessive purging prior to sample collection and prevent pressure build-up in the enclosure during introduction of the tracer gas. Inspection of the installed sample probe, specifically noting the integrity of the surface seal and the porosity of the soil in which the probe is installed, will help to determine the tracer gas setup. The sampling team must avoid actions (e.g., fueling vehicles, using permanent marking pens, and wearing freshly dry-cleaned clothing or personal fragrances) which could potentially cause sample interference in the field.

## 2.4 Soil Gas Collection General List of Materials

The equipment required for soil gas sample collection is as follows:

### ***Flow Meters and Detectors***

1. Flow regulator with vacuum gauge. Flow regulators provided by a qualified laboratory are pre-calibrated to a specified flow rate (e.g., 100 ml/min).
2. Photoionization detector (with appropriate lamp).
3. Helium detector (if helium is utilized as a tracer gas).
4. Methane meter for petroleum sites that is capable of also measuring percent of methane ( $\text{CH}_4$ ), carbon dioxide ( $\text{CO}_2$ ), and oxygen ( $\text{O}_2$ ).

### ***Tooling and Supplies***

1. Sampling canister (one per location).
2. Regulated flow meter assembly set to a maximum of 200 ml/min (one per location).
3. 1/4 inch tubing (Teflon®, polyethylene, or similar) and assorted fittings.
4. Plastic housing for using tracer gas.
5. 50 ml syringe (for purging).
6. Camera.
7. Adjustable crescent wrenches, small to medium size, and/or open end combo wrenches 9/16 to 1/2 inch.
8. Scissors/snips to cut tubing.
9. Ballpoint pens.
10. Nitrile gloves.
11. Compound to be used as tracer gas - lab grade helium or isopropyl alcohol (IPA).

## 2.5 Soil Gas Tracer Compounds

A leak in the sampling assembly may allow ambient air into the system and dilute the soil gas results (Benton and Shafer, 2007). Therefore, tracer gases must be utilized during the collection of soil gas samples to verify that the sample collected is from the installed sampling point. The presence of a tracer compound, whether liquid or gaseous, can confirm a leak in the sampling train assembly and whether the usability of the sample will need to undergo further evaluation.

Careful thought and consideration must be used when choosing a leak check compound as a tracer, since each compound can have specific benefits and drawbacks.

Helium used as a tracer gas beneath a shroud allows for the screening of the sampling train in the field. In conjunction with the use of a field meter capable of detecting helium, leaks within the sampling train could be detected prior to sampling. A retightening of all fittings prior to collecting the sample for analysis should be done. If a leak has been detected and is unable to be resolved, the sampling point may need to be decommissioned and a new one installed. Only lab-grade helium (UHP-Ultra High Purity) should be used as a tracer, since helium available at general merchandise stores may contain secondary contaminants, such as benzene.

Understanding the relationship between a leak and the concentration detected of the tracer gas used to check for leaks, the potential for absorption of the tracer gas (i.e., helium) onto sample train tubing, and the potential for interference by the tracer gas compound with VOCs is important in answering the data usability. An ambient air leak of up to five percent may be acceptable if quantitative tracer testing is performed. A soil gas vapor well should be decommissioned if the leak cannot be corrected. Any replacement vapor wells should be installed at least five feet from the location where the original vapor well was located.

**Note:** The ambient air leak of up to five percent leak should be verified based on the applicable jurisdictional regulatory vapor intrusion guidance.

## 2.6 Soil Gas Probe Leak Testing

The use of leak testing is recommended as a quality control check to ensure ambient air has not leaked into the soil gas probe or sampling assembly, which may affect (i.e., dilute) the analytical results. Contaminants in ambient air can also enter the sampling system and be detected in a sample from a non-contaminated sampling probe resulting in a "false positive" result. The leak testing should be conducted as described in the following two steps:

- Step 1 - Vacuum Test: used to ensure that the tubing and fittings/valves that make up the sampling assembly are air-tight.
- Step 2 - Tracer Test: used to ensure that ambient air during soil gas sample collection is not drawn down the soil gas probe annulus through an incomplete seal between the formation and the soil gas probe casing.

The vacuum test and tracer test are detailed below.

### ***Step 1 - Vacuum Test***

- The sampling assembly must be connected to the soil gas probe valve at the surface casing. Once connected, the sampling assembly will consist of the soil gas probe, the vacuum gauge supplied by the laboratory, personal sampling pump, and Summa™ canister, all connected in series (i.e., in the order of soil gas probe, vacuum gauge, pump, and canister), using tee-connectors or tee-valves.
- The personal sampling pump will be used to conduct the vacuum test. The vacuum test should consist of opening the valve to the personal sampling pump while leaving closed the valves to the Summa™ canister and the soil gas probe. The pump should then be operated to ensure that it draws no air from the sampling assembly (i.e., creates a negative pressure, or vacuum

within the sampling assembly), thus establishing that all assembly connections are air-tight. The sampling pump low-flow detect switch will likely activate within 10 to 15 seconds, turning the pump off. A negative pressure, or vacuum, should be established within the sampling assembly, and should be sustained for at least 1 minute.

- If the pump is capable of drawing flow, or if the vacuum is not sustained for at least 1 minute, all fittings and tubing will be checked for tightness (or replaced) and the vacuum test will be repeated.
- The reading from the vacuum gauge pressure should be recorded in field logbook to demonstrate that the pump is able to create a vacuum within the sampling assembly (it will also be noted whether the low-flow detect switch on the pump was activated), and that the vacuum is sustained for at least 1 minute.

### ***Step 2 - Tracer Test***

A tracer compound is released at ground surface immediately around the soil gas probe surface casing and is used to test for ambient air leakage down the annulus of the soil gas probe and into the soil gas sample. Tracer test where helium is used as the tracer compound is described below.

#### ***Helium Tracer Compound***

- The presence of helium within the sampling assembly should be monitored during purging and soil gas sample collection using a helium meter installed in-line with the sampling assembly. The meter should be positioned along the sampling line just before the personal sampling pump.
- Helium is readily available at a variety of retail businesses, is safe to use, and does not interfere with laboratory analytical method detection limits.
- A containment unit is constructed to cover the soil gas probe surface casing. The containment unit should consist of an overturned plastic pail set into a ring of dry bentonite to create a seal between the ground surface and the rim of the pail. The pail can be set directly on top of the sampling assembly tubing connected to the soil gas probe, which when pressed into the dry bentonite, should create a sufficient seal around the tubing. The pail will have two holes: one to allow for the introduction of helium; and the other to allow for air trapped inside the pail to escape while introducing the helium. The second hole will also allow insertion of the helium meter to measure the helium content within the pail.
- Prior to soil gas probe purging, helium will be introduced into the containment unit to obtain a minimum 50 percent helium content level. The helium content within the containment unit should be confirmed using the helium meter and recorded in the field logbook. Helium should continue to be introduced to the containment unit during soil gas probe purging and sampling and care should be taken not to increase the pressure within the containment unit beyond that of atmospheric pressure.
- During soil gas probe purging and sampling, the helium meter should be connected in-line with the sampling assembly. In the event that the helium meter measures a helium content with the sampling assembly of greater than 10 percent of the source concentration (i.e., 10 percent of the helium content measured within the containment unit), the soil gas probe will be judged to permit significant leakage such that the collected soil gas sample will not be considered reliable and representative of soil gas concentrations within the formation (ITRC, 2007).

- An advantage of using helium as the tracer compound is that a significant leak can be detected in the field and the cost of analyzing the Summa™ canister can be avoided.

Note: The 10 percent of the source concentration should be verified based on the applicable jurisdictional regulatory vapor intrusion guidance.

## 2.7 Sample Collection Procedure

1. Soil gas samples for assessing the vapor intrusion pathway must be collected using an acceptable canister, including certified clean Summa™ canisters. Only canisters certified clean at the 100 percent level can be used for soil gas sampling activities (i.e., pre-cleaned at the laboratory in accordance with U.S. EPA's TO-15 method and documentation of the cleaning activities will be provided by the laboratory). Summa™ canisters typically come in 1-, 1.7-, and 6-liter capacities, depending upon laboratory availability.
2. The canisters must be fitted with a laboratory-calibrated critical orifice flow regulation device sized to restrict the maximum soil gas sample collection flow rate to approximately 100 milliliters per minute (mL/min), which corresponds to the lower end of the maximum soil gas sampling flow rate recommended by Cal EPA (2015) of 100 to 200 mL/min. The 100 mL/min maximum flow rate is equivalent to sample collection times of 10, 17, or 60 minutes, respectively, for of 1, 1.7, or 6 liter canister capacities. A maximum flow rate of 100 mL/min is recommended to limit VOC stripping from soil, prevent the short-circuiting of ambient air from ground surface down the soil gas probe annulus that would dilute the soil gas sample. A maximum flow rate of 100 mL/min increases confidence that the soil gas sample is drawn from immediately surrounding the screened interval.
3. A vacuum gauge should be supplied by the laboratory and used during sample collection to measure the initial canister vacuum, canister vacuum during sample collection, and residual canister vacuum at the end of sample collection. The vacuum gauge will be returned to the laboratory and used by the laboratory to measure the residual canister vacuum upon receipt of the canisters by the laboratory.
4. The canister should be connected to the soil gas probe valve at the surface casing using the sampling assembly (see Figure B.4). The sampling assembly is connected using short lengths (e.g., 1-foot [0.3 m] 1/4-inch (6.4 mm) or 3/8-inch (9.5 mm) diameter tubing (the tubing material will be Teflon® or nylon) and airtight stainless steel or brass tee-connectors and tee-valves (e.g., Swagelok® type). The canister should be connected to the soil gas probe along with a vacuum gauge and a personal sampling pump, all in series, using tee-connectors or tee-valves (in the order of soil gas probe, vacuum gauge, pump, and canister). A tee-valve should be used to connect the pump, which will allow the pump to be isolated from the sampling assembly during sample collection. Fresh tubing must be used for each sample.
5. Prior to collecting a soil gas sample, the stagnant air in the sampling assembly tubes and soil gas probe casing/sand pack must be removed. The soil gas probes should be purged prior to sampling using the personal sampling pump at a flow rate of less than 200 mL/min. A flow rate greater than 200 mL/min may be used when purging times are excessive, such as for deep wells with larger-diameter tubing. However, a vacuum of 100 inches of water (7.4 inches of Hg) or less must be maintained during sampling whenever a higher flow rate is used. This ensures that the collected soil gas sample is representative of actual soil gas concentrations within the formation. Measurements of the lengths and inner diameters of the

above-ground sampling assembly and below-ground gas probe casing, screen, and sand pack should be used to calculate the "purge volume" (the purge volume will consider the pore volume of the sand pack assuming a 30 percent sand pack porosity). Prior to sample collection, two to three purge volumes should be drawn from the probe/sample assembly, unless otherwise required by the applicable regulatory guidance. The purge data (calculated purge volume, purging rate, and duration of purging) should be recorded in the field logbook.

6. Prior to purging, a vacuum, or tightness, test should be conducted on the sampling assembly as the first of two leak-testing steps, as described further in Section 2.6. Briefly, this first leak-testing step (the vacuum test) should consist of opening the valve to the personal sampling pump leaving the valves to the Summa™ canister and the soil gas probe closed. The pump should then be operated to ensure that it draws no air from the sampling assembly (i.e., creates a negative pressure, or vacuum within the sampling assembly), thus establishing that all assembly connections are airtight. Further details of the vacuum test are described in Section 2.6.
7. Prior to purging, and following the vacuum test, the set-up for the second of the two leak-testing steps should be conducted. The second leak-testing step is the tracer compound step. A tracer compound is released at ground surface immediately around the soil gas probe surface casing. The tracer test is used to test for ambient air leakage down the annulus of the soil gas probe and into the soil gas sample. The tracer compound is either monitored using a meter connected in-line to the sampling assembly (e.g., helium), or is included as an analyte in the laboratory analysis of the soil gas samples (e.g., isopropanol). The setup requirements of the tracer compound leak-testing step are described in Section 2.6.
8. Following the vacuum test, and the setup for the tracer compound leak-testing step, the soil gas probe purging should commence by opening the valve to the soil gas probe and activating the personal sampling pump (and leaving closed the valve to the Summa™ canister). At the start and the end of the purging period, the total concentration of volatile organic vapors of the personnel sampling pump exhaust gas should be monitored using a portable photoionization detector (PID) meter. The PID meter should be connected in series after the personal sampling pump. Since typical PID instrument flow rates vary from approximately 300 to 500 mL/min (depending on the manufacturer and model), drawing a sample into the PID meter through the personal sampling pump will likely increase the purging flow rate temporarily, until a reading from the PID meter is obtained. PID readings should be recorded and entered in the field logbook and chain of custody form. The PID readings should provide the laboratory with an indication of whether a sample could require dilution before analysis.
9. Following purging, the valve to the personal sampling pump should be closed, and the valves to the soil gas probe and Summa™ canister opened to draw the soil gas sample into the canister. This should be completed concurrent with continued application of the leak-testing tracer compound. The vacuum gauge reading must be recorded during sample collection. Should the vacuum gauge reading remain elevated above 10 inches Hg for more than 30 minutes, this will be taken to indicate that the initial vacuum in the canister has not sufficiently dissipated, and that the soil screened by the soil gas probe does not produce sufficient soil gas to permit sample collection due to low permeability soil. If low permeability conditions are encountered, the probe can be sampled using the techniques outlined in Appendix D (Soil Gas Sampling in Low Permeability Soil) of Cal EPA (2015).

10. To ensure some residual vacuum in each canister following sample collection, the canister vacuum should be recorded at approximately 80 percent through the expected sample collection duration. With a 100 mL/min maximum flow rate, the expected sample collection duration would be 10, 17, or 60 minutes, respectively, for canister capacities of 1, 1.7, or 6 liters. A maximum residual vacuum of 10-inches Hg is allowed. A canister residual vacuum above this value will require continued sampling until vacuum reading is below this threshold, unless the vacuum remains above 10-inches Hg for more than 30 minutes, as described above. A minimum 0.5 to 1-inch Hg residual vacuum will be required for the sample to be considered valid, or the sampling will be repeated using a fresh Summa™ canister. Once the vacuum is measured, the safety cap must be securely tightened on the inlet of the Summa™ canister prior to shipment to the laboratory under chain-of-custody procedures.

Note: The 0.5 to 1-inch Hg residual vacuum should be verified based on the applicable jurisdictional regulatory vapor intrusion guidance.

11. The vacuum gauge provided by laboratory must be returned with the canister samples to check residual vacuum in the laboratory prior to sample analysis and recorded on the analytical data report. This check will ensure sample integrity prior to laboratory analysis, and that the canister has not become compromised during shipment to the laboratory.
12. If the critical orifice flow regulation devices (provided by the laboratory) and sampling assembly fittings/valves are to be re-used during sampling, they must be cleaned in accordance with laboratory requirements by purging with zero air (provided by laboratory) for minimum 45 seconds at minimum 75 psi (153 inches of Hg).
13. The canisters should be labeled noting the unique sample designation number, date, time, and sampler's initials. A bound field logbook should be maintained to record all soil gas sampling data.
14. The canisters should be listed on the chain-of-custody in order of suspected highest to lowest impact, as evidenced by the recorded PID readings. Indicate on the chain-of-custody for the laboratory to analyze the canisters in order from the lowest to highest PID reading.

The soil gas samples should be analyzed for VOCs by the project laboratory using U.S. EPA's TO-15 gas chromatograph/mass spectrometer (GC/MS) methodology, with the mass spectrometer (MS) run in full scan mode. QA/QC measures implemented during the soil gas sampling event will include the two-step leak testing procedure (see Section 2.6), maintaining a minimum residual vacuum in the Summa™ canisters following sample collection, collection of one duplicate per sampling event or from at least 10 percent of the samples obtained, and collection of an ambient air sample (if needed). As an additional QA/QC measure, the laboratory should conduct a duplicate analysis of the sample collected in one of the canisters.

## 2.8 Follow-Up Activities

The following activities should be performed at the completion of the field work.

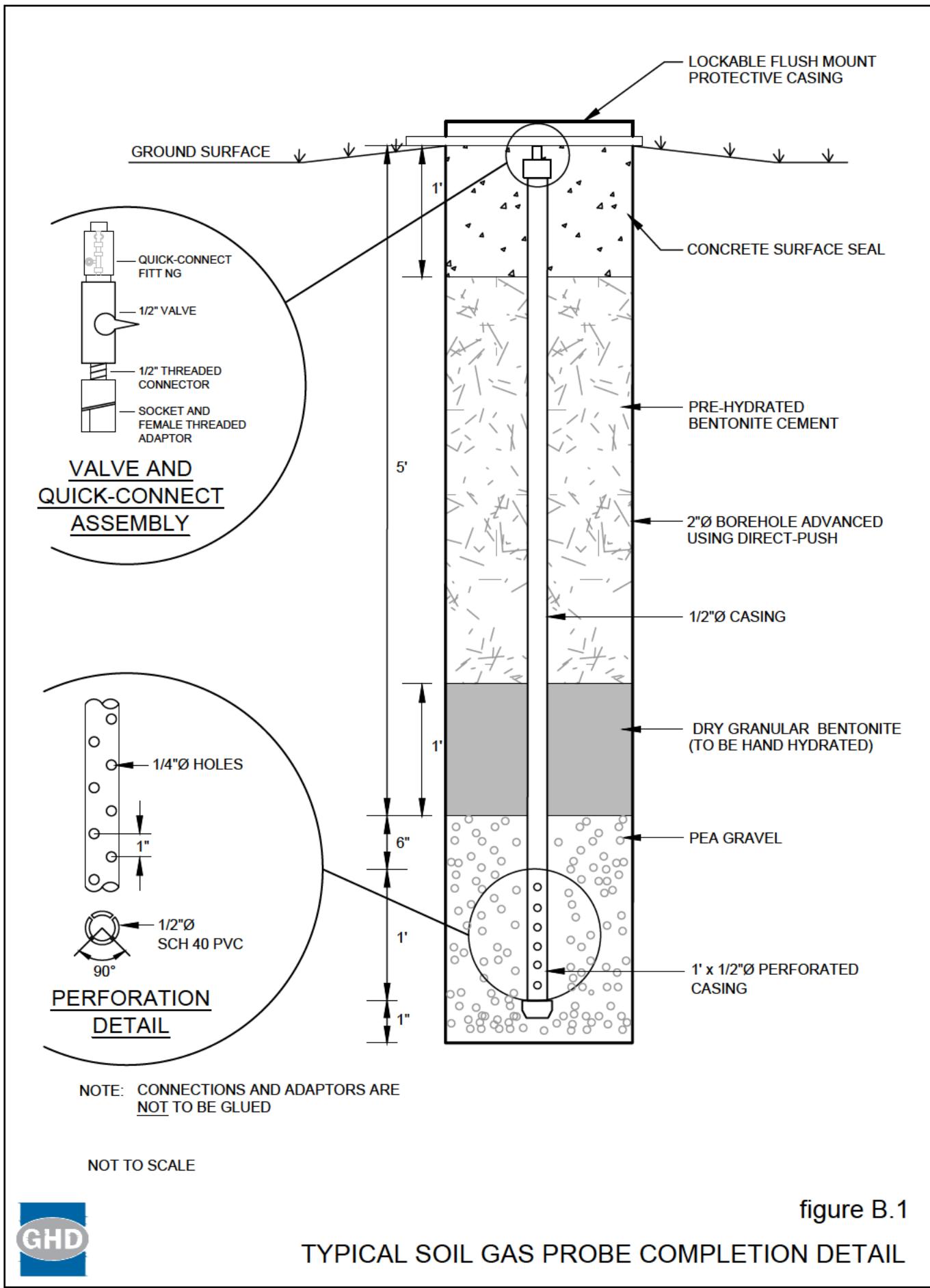
1. Review and compare newly obtained data with historic data and flag unusual or extreme readings for review.
2. Soil gas concentrations are reported in units of  $\mu\text{g}/\text{m}^3$  or ppbv. Unlike concentration units for groundwater, these units are not directly interchangeable. The molecular weight of the

compound in question is a factor in the conversion from units of mass per unit volume to parts per billion by volume.

3. Ensure site access keys are returned.
4. The equipment should be cleaned and returned to the Equipment Coordinator. All equipment should be cleaned at the site.
5. Monitoring forms and field notes should be sent to the file. The field book should be stored at the appropriate GHD office.

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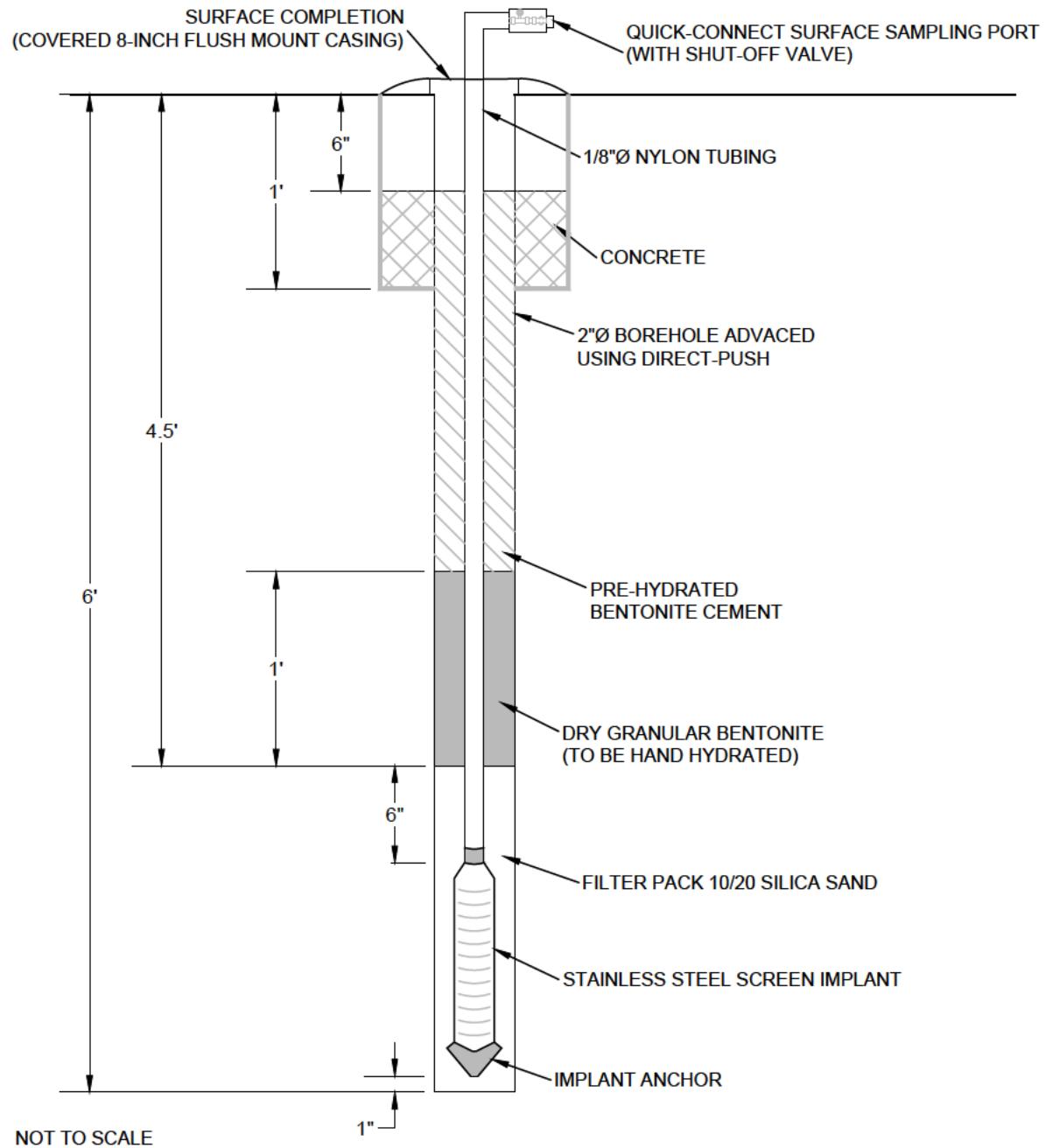
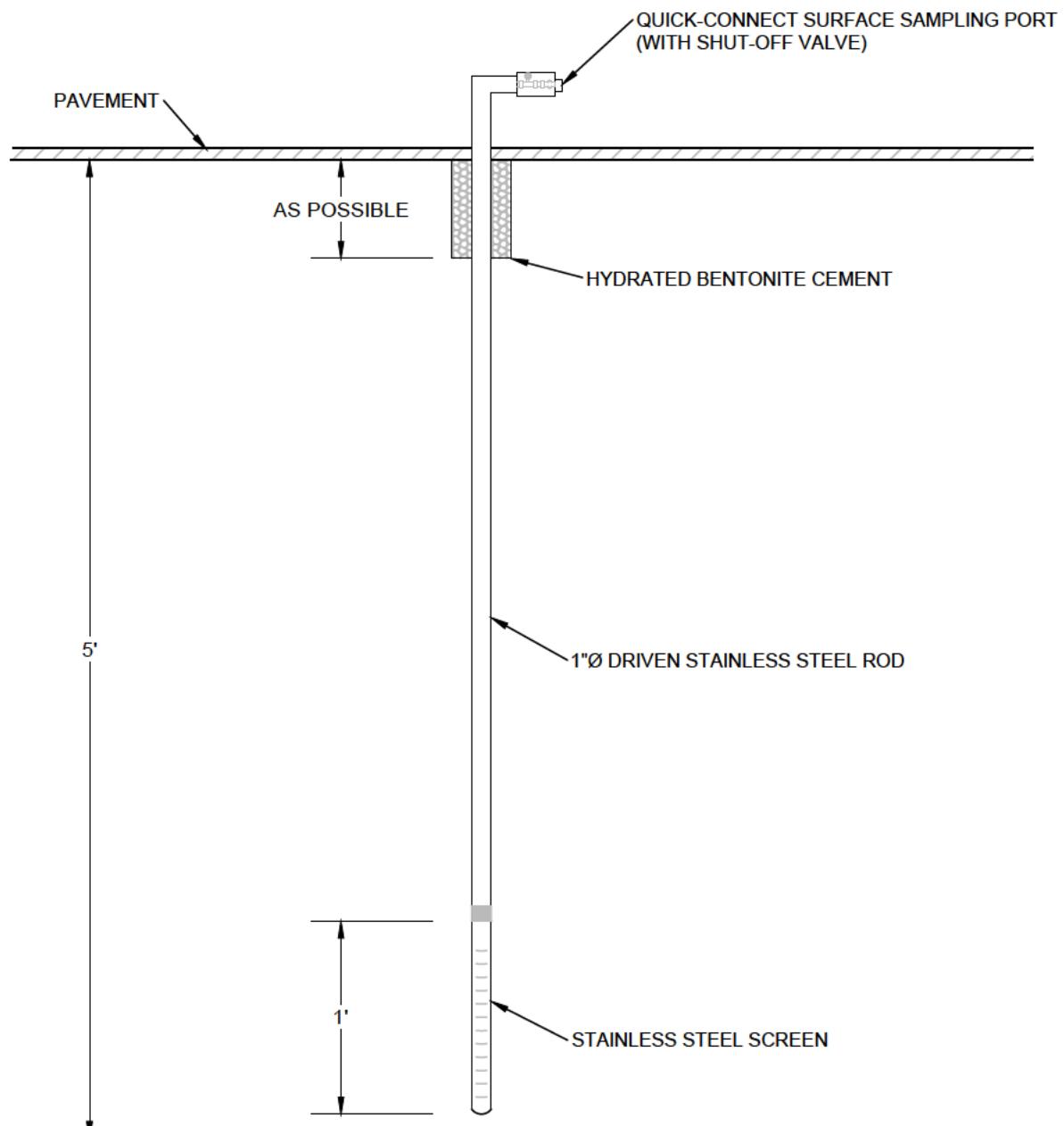


figure B.2

TYPICAL SOIL GAS PROBE COMPLETION DETAIL  
WITH PREFABRICATED SCREEN IMPLANT

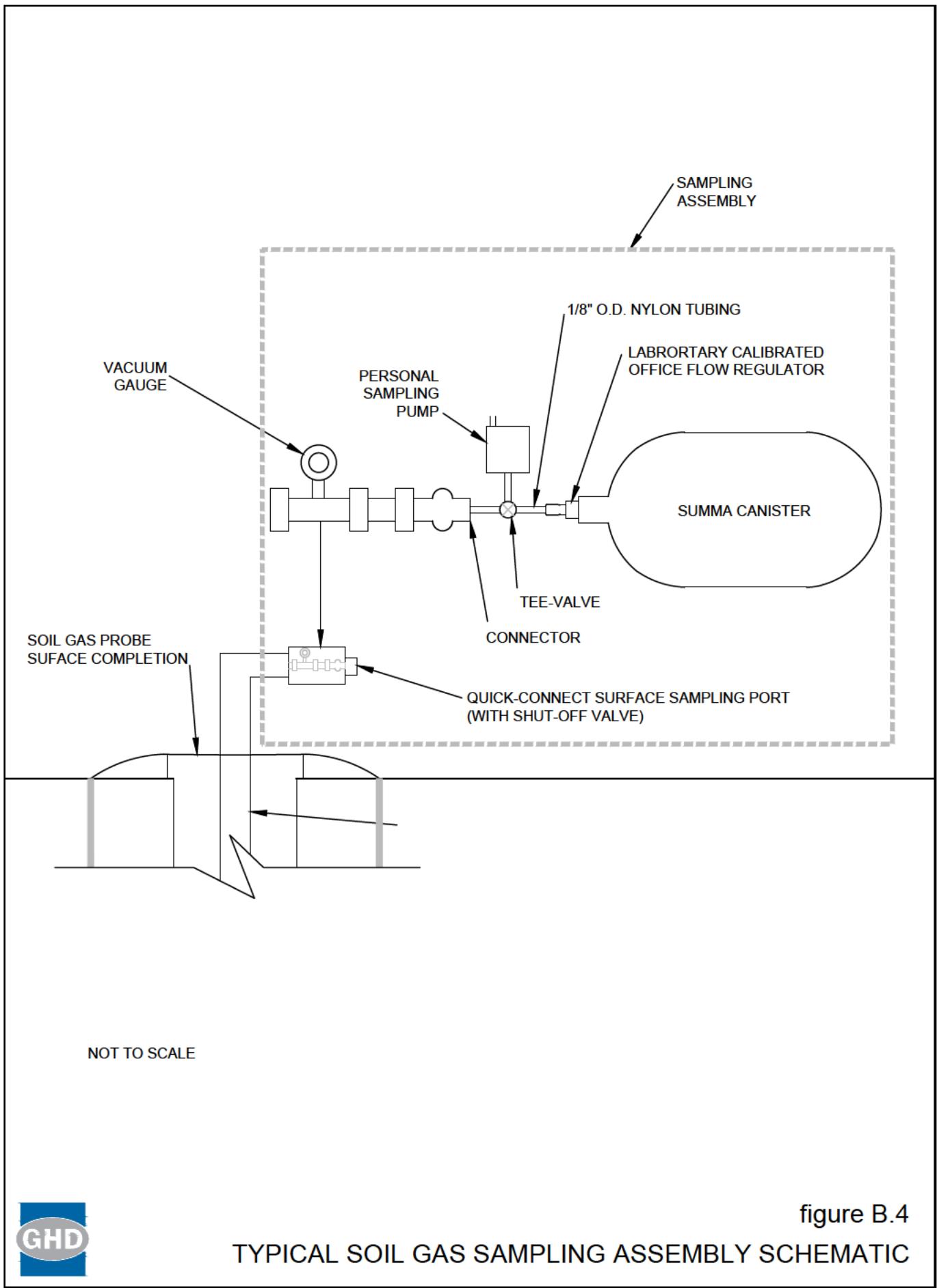




NOT TO SCALE



figure B.3  
TYPICAL TEMPORARY SOIL GAS PROBE COMPLETION DETAIL



## Appendix C

# Administration Building Indoor Air Sampling

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## **Figure Index**

Figure C.1 Indoor Air Sample Location on First Floor of the Administration Building

Figure C.2 Indoor Air Sample Location on Second Floor of the Administration Building

## **Attachment Index**

Attachment C-1 Indoor Air Sampling Standard Operating Procedures

# 1

# Administration Building Indoor Air Sampling

## 1.1 Introduction

A Vapor Intrusion Interim Corrective Measure (VI ICM) for the Administration Building was approved by United States Environmental Protection Agency (U.S. EPA) and established by OCC in 2011. The effectiveness of the VI ICM is monitored through the Interim Corrective Measures Operations and Maintenance Plan (CRA, 2011) (O&M, Plan); the O&M plan includes quarterly pressure monitoring and building inspections. The O&M Plan outlines quarterly inspections and reporting of visual observations on the conditions of the building floors and measuring of the pressure differential between the building and the subsurface via permanent pressure gauges. OCC and GSH perform this monitoring to document that a positive (i.e., outward or downward) pressure differential is being maintained within these buildings through the continuously operated Heating Ventilation and Air Conditioning (HVAC) system. The results of the quarterly inspections of the ICM, including the quantitative measurement of pressure differential, have been reported to U.S. EPA since 2011. These data continue to demonstrate that there is no driving force for vapor intrusion into the building and the positive pressurization maintained within the building prevents soil gas entry into the building. The quarterly pressure monitoring that has occurred over the last five years is consistent with current U.S. EPA guidance and has continually demonstrated that the exposure controls are operating as intended. However, in August 2016, U.S. EPA requested supplemental indoor air monitoring in occupied locations within the Administration Building. The procedures described in this Appendix pertain to the supplemental indoor air monitoring to assess the effectiveness of the VI ICM in the Administration Building.

## 1.2 Indoor Air Sampling Protocol

The Administration building is comprised of two above-ground floors, a basement area comprises less than half the building footprint and the remainder of the building is slab-on-grade. The basement area is used for storage and is not occupied. Two indoor air samples will be collected during 1 work day in the Administration Building: one sample will be collected on the first floor conference room; one sample will be collected on the second floor near occupied offices. The indoor air sample locations for the first floor and second floor are shown on Figures C.1 and C.2, respectively. The indoor air samples will be collected using a Summa™ canister (6-litre capacity) equipped with a critical orifice flow regulation device sized to allow the collection of an air sample over an 8-hour sampling period. The canisters will be placed approximately 3 to 5 feet above the floor and will be placed within the breath

The indoor air samples will be collected following the sampling protocol presented in Attachment C-1.

The indoor air samples will be transported under standard chain-of-custody procedures to a certified laboratory for select VOCs analysis using U.S. EPA TO15 method. Hexachloroethane is not on the standard U.S. EPA TO15 list, however; it will be added as a special TIC and be analyzed using the EPA TO-15 analysis.

The select VOCs are identified in the following section. Quality assurance/quality control (QA/QC) measures implemented during the indoor air sampling event will include collecting one duplicate

sample and maintaining a minimum negative pressure in the Summa™ canisters following sample collection.

The evaluation of the indoor air data collected during this investigation is discussed below.

### **1.3 Evaluation of Indoor Air Data**

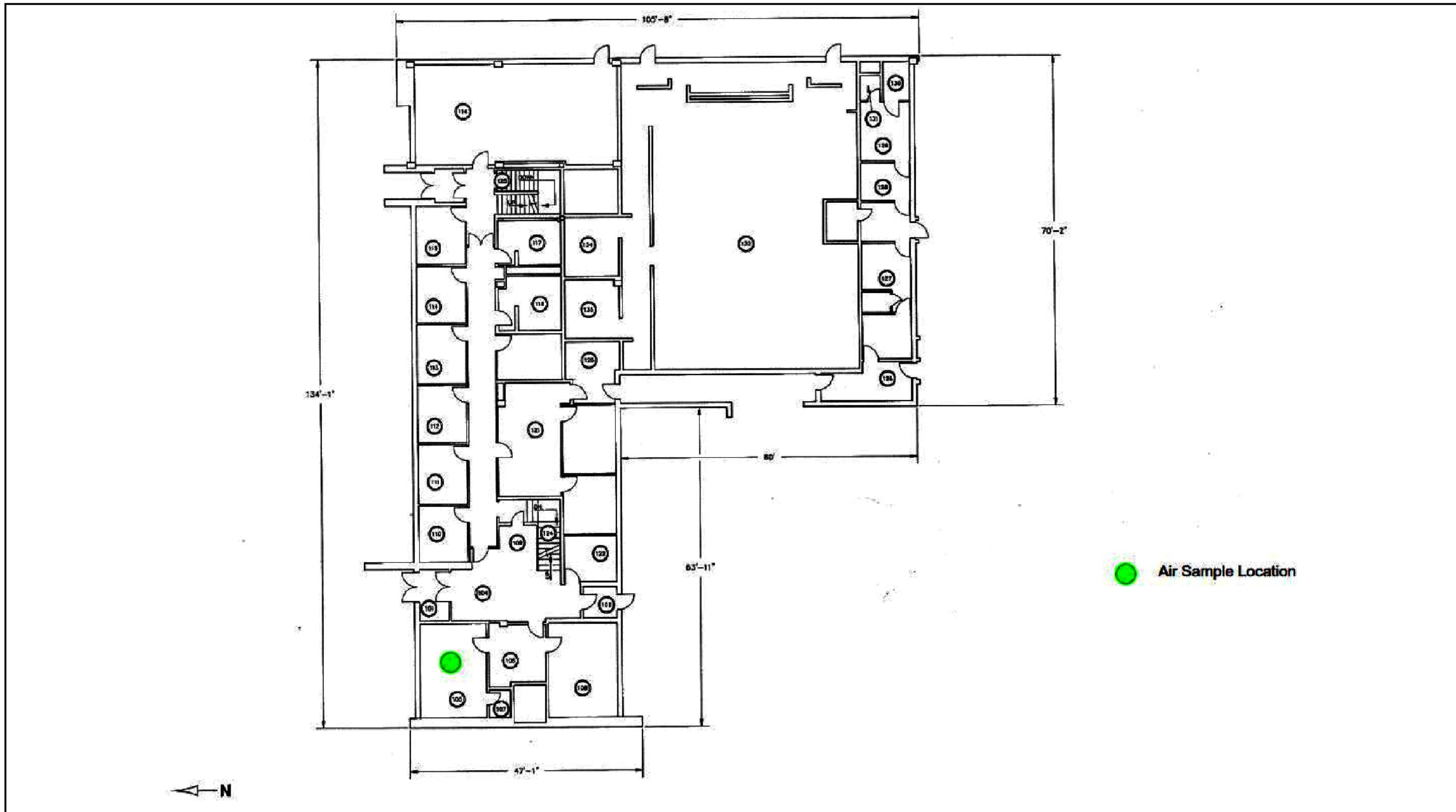
The indoor air samples collected using the summa canisters will be analyzed for the Chemicals of Potential Concern listed below.

- Hexachlorobutadiene
- Hexachloroethane
- Carbon tetrachloride
- Chloroform
- Methylene chloride
- Trichloroethene
- Tetrachloroethene

The indoor air analytical data will be compared to the calculated Target Indoor Air Concentrations (TIACs) that are considered to be protective of indoor air for a typical industrial/commercial worker scenario. The TIACs will be calculated using the U.S. EPA's OSWER Vapor Intrusion Screening Level (VISL) Calculator (Version 3.5.1, May 2016 Regional Screening Levels [RSLs]) (U.S. EPA, 2016) and will assume an industrial/commercial worker exposure scenario. A Target Risk (TR) for carcinogens of 1E-06 and Target Hazard Quotient (THQ) of 0.1 will be used in the VISL Calculator. Additionally, the analytical data will be compared to the OSHA PELs. The laboratory data and results of the VISL calculations will be included in the On-Site Vapor Intrusion Investigation Report.

## **2 References**

U.S. EPA, 2016. Vapor Intrusion Screening Level (VISL) Calculator (XLSM) available at <http://www.epa.gov/vaporintrusion#Item6>.

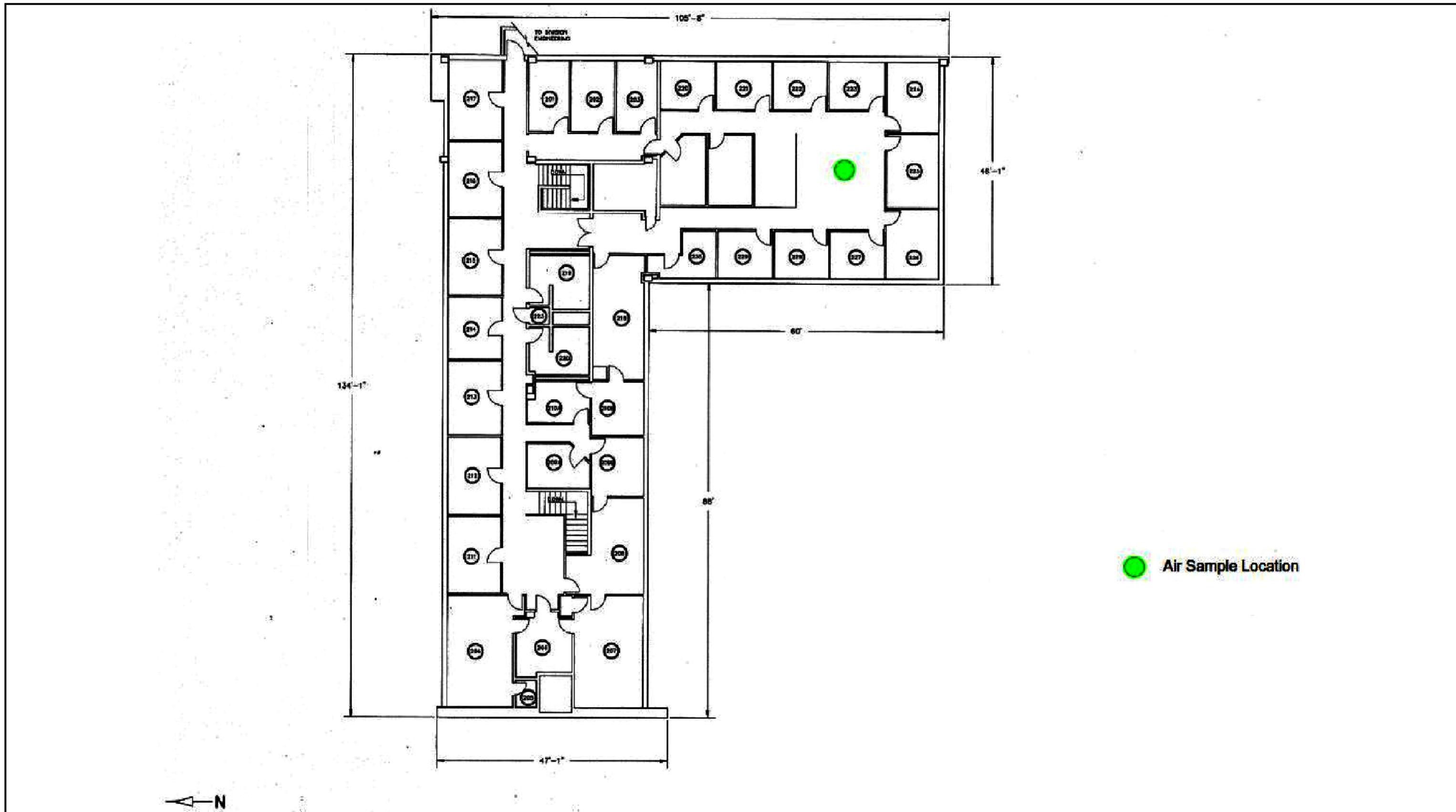


OCCIDENTAL CHEMICAL CORPORATION  
WICHITA, KANSAS

INDOOR AIR SAMPLE LOCATION ON FIRST  
FLOOR OF THE ADMINISTRATION BUILDING

54046-D22106  
Sep 9, 2016

FIGURE C.1



OCCIDENTAL CHEMICAL CORPORATION  
WICHITA, KANSAS

INDOOR AIR SAMPLE LOCATION ON SECOND  
FLOOR OF THE ADMINISTRATION BUILDING

54046-D22106  
Sep 9, 2016

FIGURE C.2

# Attachment C-1

## Indoor Air Sampling Standard Operating Procedures

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## **Form Index**

SP 28      Indoor Air Sampling Field Data Sheet

# **1 Indoor Air Sampling Standard Operating Procedures**

## **1.1 Introduction**

The procedures described herein pertain to the sampling of indoor air to evaluate the potential presence of volatile organic compounds (VOCs) in indoor air. VOCs can be present in a building's breathable air space from background sources such as glues, adhesives, construction materials, degreasers, cleaning products, aerosols, or organic vapor migration from beneath the structure (i.e., vapor intrusion) as a result of subsurface soil, groundwater, Light Non-Aqueous Phase Liquid (LNAPL) impacts. The protocol presented herein consists of collecting indoor air samples using Summa™ canisters.

## **1.2 Indoor Air Sampling Procedures**

### **1.2.1 QA/QC Activities**

The level of the QA/QC effort may include:

- A field duplicate
- Laboratory certification (individual clean can or batch certification)

One field duplicate sample will be obtained. The duplicate sample will be collected by using a splitter with separate sampling tubes connecting the splitter to two Summa™ canisters. Duplicate samples will be analyzed to check for sampling and analytical reproducibility. At least one extra Summa Canister should be considered in case of a faulty canister, gauge, or flow controller. The extra canister(s), if not needed, could be used as an additional duplicate sample.

The level of QA/QC effort provided by the project laboratory for the samples analyses should correspond to the level of QA/QC effort specified in "The Determination of Volatile Organic Compounds in Ambient Air Using Summa™ Passivated Canister Sampling and Gas Chromatographic Analysis" (U.S. EPA, 1988).

### **1.2.2 General Field Procedures**

The following indoor air collection procedure outlines the procedure used by GHD in assessing the vapor intrusion pathway. The typical series of events that will take place are:

1. Sample location identification/inspection
2. Indoor air monitoring
3. Field notes completion, review, checking
4. Prepare samples for laboratory shipment

#### ***Sample Location Identification/Inspection***

Once at the site and prior to indoor air sampling, confirm that the sample location (i.e., indoor air location) has been correctly identified and located.

If it is necessary to relocate any proposed sample locations, the project coordinator must be notified and an alternate location will be selected and approved in the same manner.

The Quarterly Pressure Monitoring Form from Appendix A of the Operation and Maintenance Plan for On-Site Vapor Intrusion Interim Corrective Measures at the Control Laboratory, Technical Center and Administration Building (O&M Plan) (CRA, 2010) will also be filled in as part of the indoor air sampling.

### **1.2.3 Indoor Air Sampling Protocol**

Air samples will be collected from the buildings in the primary working areas of the building at locations considered representative of the breathing space.

The indoor air samples will be collected using a Summa™ canister (6-litre capacity) equipped with a critical orifice flow-regulation device sized to allow the collection of an air sample over the selected time period (e.g., 8-hours). The critical orifice flow-regulation device must be supplied and calibrated by the laboratory selected to conduct the sample analysis.

To the extent possible, the indoor air samples should be collected with windows and building entry/exit doors closed. A closed (no circulation) condition should represent appropriately conservative (worst-case) conditions. Windows and building entry/exit doors will be kept closed for a period of at least 24 hours prior to sample collection. Likewise, ingress and egress activities should be minimized. Heating, ventilation, and air conditioning (HVAC) systems will be operated normally for the season and time of day. During colder months, heating systems should be operating for at least 24 hours prior to the scheduled sampling event to maintain normal indoor temperatures above 65°F (18°C) before and during sampling. During summer months, air conditioners typically would be operating under closed windows/building entry/exit doors conditions, and the operation of an air conditioner can be allowed during sample collection. This would be representative of season-specific ventilation conditions, and within the expected parameters of operation of the building. Care should be taken to deploy the Summa™ canisters away from the direct influence of any blowing or forced air vents (e.g., those emanating from a window-style air conditioning unit or central air conditioning vents).

The indoor air sampling procedure is described as follows:

- Indoor air samples will be collected from an occupied area and as close as practical to the center of the area, but away from high traffic areas to minimize the potential for disturbances during sample collection. Sample canisters will be located between 1 to 1.5 metres (m) or 3 to 4 feet above floor level for adults.
- Air sample canisters will be labeled with a unique sample identification number. Both the sample number and the sample location information will be recorded in the project's field logbook. A bound field logbook and/or SP 28 – Indoor Air Sampling Field Data Sheet will be maintained to record all indoor air sampling data.
- A vacuum gauge must be supplied by the laboratory and used during sample collection to measure the initial canister vacuum, canister vacuum during sample collection, and residual canister vacuum at the end of sample collection. These pressures must be recorded in the field logbook. The vacuum gauge must be returned to the laboratory and used by the laboratory to measure the residual canister vacuum upon receipt of the canisters by the laboratory.

- The critical orifice flow controller must be installed, as supplied by the laboratory, on the canister and the canister must be opened fully at the beginning of sample collection period and start time. The start and finish times must be recorded in the bound field logbook.
- At the start and the end of the sampling period, a portable photoionization detector (PID) should be used to screen for VOC vapors in the sample area. Ideally, a low level, parts per billion (ppb), PID meter should be used prior to and during, the indoor air sampling events. Results of the PID monitoring are to be recorded in the bound field logbook and SP 28 – Indoor Air Sampling Data Sheet.
- Equipment serial numbers, sampler name, calibration records, and any comments must also be recorded with the field logbook.
- Barometric pressure, outdoor ambient temperature, and interior temperature readings will be recorded at the start and completion of sampling. Data may be collected directly from field instrumentation or obtained via online sources (e.g., local NOAA weather station database).
- The canister valve must be closed fully at the end of the sample period (e.g., after 8 hours) and the sample completion time recorded on the field data sheet. If there is evidence of canister disturbance during the sample collection, this will be recorded.
- The Summa™ canister vacuum must be measured immediately after canister retrieval at the end of the sample period and recorded on the field data sheet. Any sample where the canister reached atmospheric pressure (i.e., no vacuum), the sample will be considered for rejection and the canister returned for cleaning. The minimum residual vacuum required to be considered a valid sample may be dictated by regulatory guidance (generally at least 5-inches Hg vacuum). Once the vacuum is measured, the safety cap will be securely tightened on the inlet of the Summa™ canister prior to shipment to the laboratory under standard chain of custody procedures. The requirement that a residual vacuum be retained in the canister following sample collection is to ensure that a driving force (pressure) and steady flow rate was maintained until the end of the sampling event.
- The indoor air samples collected via Summa Canister Method should be analyzed for the project-specified VOCs by the project laboratory using U.S. EPA's TO-14, TO-15 SIM, or TO-15 gas chromatograph/mass spectrometer (GC/MS) methodology, with the mass spectrometer (MS) run in full scan mode. As an additional QA/QC measure, the laboratory should perform a duplicate analysis of the sample collected in one of the canisters.

#### **1.2.4 Data Review and Validation**

Following receipt of analytical data, forward data to a GHD chemist for creation of tables, data validation review and reporting, and prepare electronic data deliverable (EDD) as needed. Compare analytical data to applicable indoor air quality standards and/or consult with GHD's vapor intrusion and risk assessment experts for advice. The laboratory will report the data in parts per billion (ppb) and micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).

#### **1.3 References**

CRA, 2010. Operation and Maintenance Plan for On-Site Vapor Intrusion Interim Corrective Measures at the Control Laboratory, Technical Center and Administration Building, Glenn Springs Holdings, Inc., Occidental Chemical Corporation Facility, Wichita, Kansas, December.

USEPA, 1988. The Determination of Volatile Organic Compounds in Ambient Air Using Summa™ Passivated Canister Sampling and Gas Chromatographic Analysis.

USEPA, 1999a. USEPA Method TO-15.

USEPA, 1999b. USEPA Method TO-17.

USEPA, 2015. OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air, OSWER Publication 9200.2-154, June 2015.

Attachment C-1  
Form SP 28 - Indoor Air Sampling  
Field Data Sheet

Indoor Air Sampling Field Data Sheet  
(Form SP-28)

a) General Information

Sample Identification Number: \_\_\_\_\_

Site Address: \_\_\_\_\_

Sample Canister Location: \_\_\_\_\_

Sample Date: \_\_\_\_\_ Sampler: \_\_\_\_\_

Sample Time: Start: \_\_\_\_\_ Stop: \_\_\_\_\_

Shipping Date: \_\_\_\_\_

Canister Type: 400 mL – 1.0 L Summa Canister/6 L Summa Canister/Other (specify):  
\_\_\_\_\_

Canister Serial No.: \_\_\_\_\_

Flow Controller Serial No.: \_\_\_\_\_

Were “Instructions to Occupants Building” followed?

Yes       No

B) Sampling Information

	Start		Stop	
	Ambient	Interior	Ambient	Interior
Temperature	_____	_____	_____	_____
Barometric Pressure	_____	_____	_____	_____
Canister Pressure Gauge Reading:	_____	_____	_____	_____
Time:	_____	_____	_____	_____
PID Reading:	_____	_____	_____	_____
Basement Depth (ft below grade):	_____	_____	_____	_____
Window Marked:	_____	Yes/No	_____	_____

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?

Yes       No

Describe the general weather conditions:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Indoor Air Sampling Field Data Sheet  
(Form SP-28)

Provide Drawing of Sample Location(s) in Building



C) Comments

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# Appendix D

## Supplemental Off-Site Soil Vapor Investigation

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Figure D.1 Off-Site Soil Gas Sample Locations and Carbon Tetrachloride Isoconcentration Contours  
in S2/S3 Groundwater

# Supplemental Off-Site Soil Vapor Investigation

## 1.1 Introduction

OCC, in coordination with United States Environmental Protection Agency (U.S. EPA) investigated the potential for vapor intrusion due to the groundwater impacts in seven residences from 2008 to 2010. The following documents were developed and approved by U.S. EPA in conjunction with the off-Site VI investigation:

- Shaw Environmental, Inc., 2008. Work Plan for Indoor Soil Gas Sampling, Occidental Chemical Corporation, Wichita, Kansas, September 22.
- CRA, 2009. Letter from Bruce Clegg to David Garrett providing Supplemental Off-Site Soil Gas Sample Collection and Analysis Plan on behalf of Glenn Springs Holdings, Inc., Occidental Chemical Corporation Facility, Wichita, Kansas, June 28.
- Shaw Environmental, Inc., 2009. Revised Soils Gas Sampling Work Plan, Occidental Chemical Corporation, Wichita, Kansas, July 25.
- CRA, 2011. Supplemental Quarterly Off-Site Soil Gas Monitoring Summary Report Revision 1, Glenn Springs Holdings, Inc., Occidental Chemical Corporation Facility, Wichita, Kansas, January 17.
- U.S. EPA, 2011. Letter from David Garrett to Juan Somoano providing U.S. EPA's approval of the 'Revised Supplemental Quarterly Off-Site Soil Gas Monitoring Report' dated January 27.

The results of the prior investigations are summarized here:

- CRA, 2009. Letter from Bruce Clegg to David Garrett providing Supplemental Off-Site Soil Gas Sample Collection and Analysis Plan on behalf of Glenn Springs Holdings, Inc., Occidental Chemical Corporation Facility, Wichita, Kansas, June 28.
- CRA, 2011. Supplemental Quarterly Off-Site Soil Gas Monitoring Summary Report Revision 1, Glenn Springs Holdings, Inc., Occidental Chemical Corporation Facility, Wichita, Kansas, January 17.

However, in August 2016, U.S. EPA requested OCC and GSH attempt collection of soil gas samples in the public Right-of-Way near six residences in the vicinity of the largest off-Site plume (carbon tetrachloride). The procedures described in this Appendix pertain to the supplemental off-Site soil vapor investigation.

## 1.2 Off-Site Soil Vapor Sampling Protocol

Consistent with the USEPA-approved Soils Gas Sampling Work Plan (Shaw, 2009), the soil vapor probes will be installed to a total depth of 15 feet below ground surface. The soil vapor probes will be installed within the public Right-of-Way adjacent to the six residences that were not previously investigated and are within the vicinity of the largest off-Site plume (carbon tetrachloride). The approximate sample locations are shown on Figure D.1.

The installation of the six soil vapor probes within the public Right-of-Way near the six residences will be consistent with the installation and sampling protocol used for the on-Site soil vapor probe that is presented in Appendix B.

The soil vapor samples will be transported under standard chain-of-custody procedures to a certified laboratory for select VOCs analysis using U.S. EPA TO15 method. The select VOCs are identified in the following section. Quality assurance/quality control (QA/QC) measures implemented during the soil vapor sampling event will include collecting one duplicate sample and maintaining a minimum negative pressure in the Summa™ canisters following sample collection.

The evaluation of the soil vapor data collected during this investigation is discussed in the following Section.

### **1.3 Evaluation of Off-Site Soil Vapor Data**

In accordance with previous off-Site soil vapor sampling programs and as listed within the USEPA-approved Soils Gas Sampling Work Plan (Shaw, 2009), the collected soil vapor samples will be analyzed for the following compounds:

- 1,1,1-Trichloroethane
- 1,2-Dichloroethane
- Benzene
- Carbon tetrachloride
- Chloroform
- Chloromethane
- Methylene chloride
- Tetrachloroethene
- Trichloroethene
- Vinyl chloride

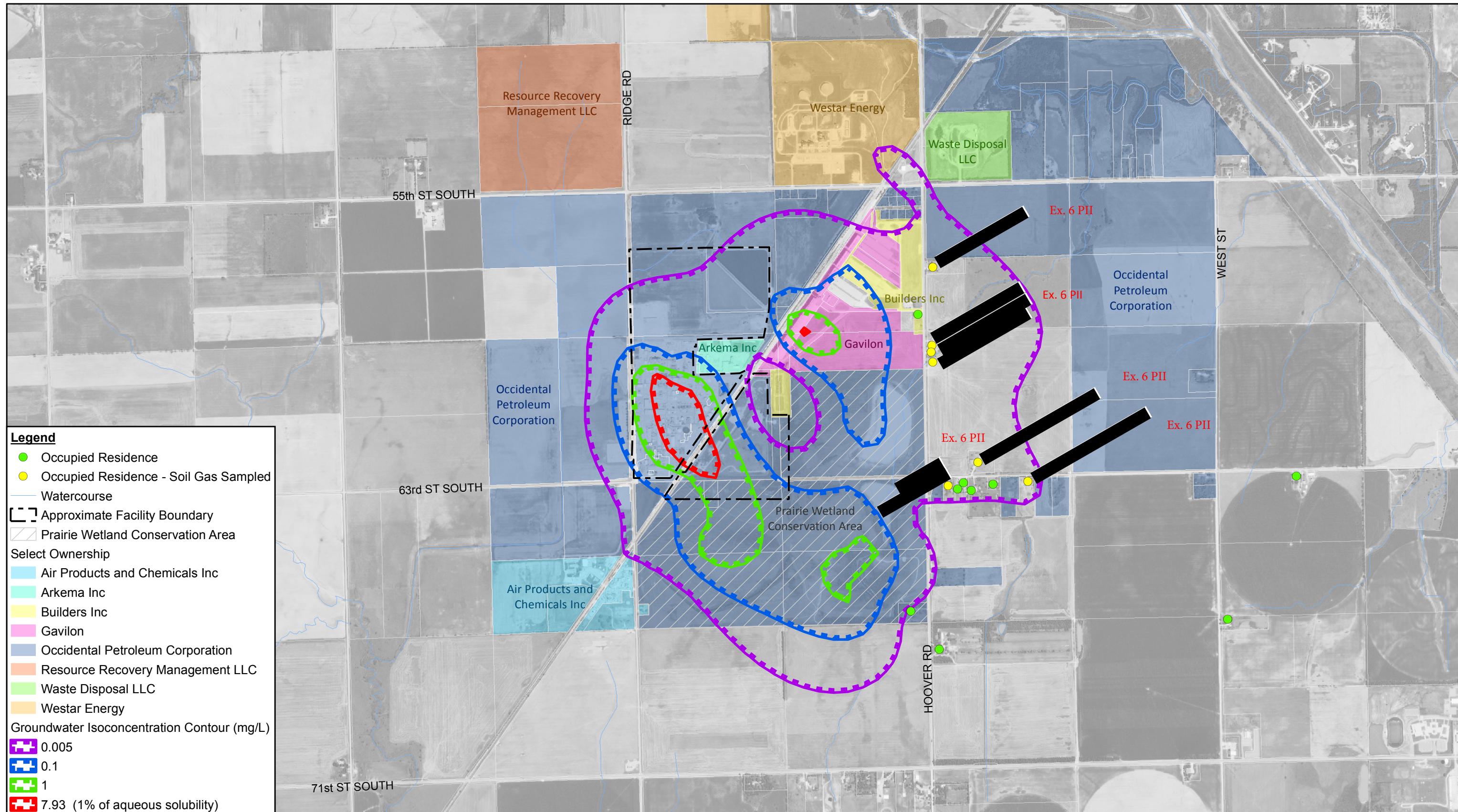
The soil vapor analytical data will be compared to the calculated Target Soil Vapor Concentrations (TSVCs) that are considered to be protective of indoor air for a typical residential scenario. The TSVCs will be calculated using the U.S. EPA's OSWER Vapor Intrusion Screening Level (VISL) Calculator (Version 3.5.1, May 2016 Regional Screening Levels [RSLs]) (U.S. EPA, 2016) and will assume a residential exposure scenario. A Target Risk (TR) for carcinogens of 1E-06 and Target Hazard Quotient (THQ) of 0.1 will also be used in the VISL Calculator.

Once the laboratory analyses are complete, the results of the investigation as well as the results of the historical investigations will be evaluated and presented in a stand-alone report.

## **2**

## **References**

- CRA, 2009. Letter from Bruce Clegg to David Garrett providing Supplemental Off-Site Soil Gas Sample Collection and Analysis Plan on behalf of Glenn Springs Holdings, Inc., Occidental Chemical Corporation Facility, Wichita, Kansas, June 28.
- CRA, 2011. Supplemental Quarterly Off-Site Soil Gas Monitoring Summary Report Revision 1, Glenn Springs Holdings, Inc., Occidental Chemical Corporation Facility, Wichita, Kansas, January 17.
- Shaw Environmental, Inc., 2008a. Work Plan for Indoor Soil Gas Sampling, Occidental Chemical Corporation, Wichita, Kansas, September 22.
- Shaw Environmental, Inc., 2009. Revised Soils Gas Sampling Work Plan, Occidental Chemical Corporation, Wichita, Kansas, July 25.
- U.S. EPA, 2011. Letter from David Garrett to Juan Somoano providing U.S. EPA's approval of the 'Revised Supplemental Quarterly Off-Site Soil Gas Monitoring Report' dated January 27.
- U.S. EPA, 2016. Vapor Intrusion Screening Level (VISL) Calculator (XLSM) available at <http://www.epa.gov/vaporintrusion#Item6>.



Source: Kansas Geological Survey WWC5, KDA-DWR WIMAS, USDA NAIP 2010

0 200 400 600

Meters

Coordinate System:  
NAD 1983 StatePlane Kansas South  
FIPS 1502 Feet



Note: Carbon Tetrachloride Isoconcentration Contour  
from May 2015 Semi-Annual Event



OCCIDENTAL CHEMICAL CORPORATION  
WICHITA, KANSAS  
OFF-SITE SOIL GAS SAMPLE LOCATIONS AND  
CARBON TETRACHLORIDE ISOCONCENTRATION  
CONTOURS IN S2/S3 GROUNDWATER

54046-D22106  
Sep 9, 2016

FIGURE D.1

[www.ghd.com](http://www.ghd.com)

